TRANSACTIONS AND PROCEEDINGS

OF THE

ROYAL SOCIETY of SOUTH AUSTRALIA

(INCORPORATED).

VOL. XXXIX.

[WITH SEVENTY PLATES AND FIFTY FIGURES IN THE TEXT.]

EDITED BY WALTER HOWCHIN, F.G.S.,
ASSISTED BY ARTHUR M. LEA, F.E.S.

PRICE TWENTY-ONE SHILLINGS.

Adelaide:
PUBLISHED BY THE SOCIETY, ROYAL SOCIETY ROOMS, NORTH TERRACE,
DECEMBER, 1915.

PRINTED BY HUSSEY & GILLINGHAM LIMITED, 106 AND 108, CURRIE
STREET, ADELAIDE, SOUTH AUSTRALIA.

Parcels for transmission to the Royal Society of South Australia from the United States of America can be forwarded through the Smithsonian Institution, Washington, D.C.

Royal Society of South Australia

(INCORPORATED).

Patron:

HIS EXCELLENCY SIR HENRY LIONEL GALWAY,
K.C.M.G., D.S.O.

OFFICERS FOR 1915-16.

President:

JOSEPH C. VERCO, M.D., F.R.C.S.

Vice-Presidents:

PROF. E. H. RENNIE, M.A., D.Sc., F.C.S.
R. S. ROGERS, M.A., M.D.

Hon. Treasurer:

W. B. POOLE.

Hon. Secretary:

WALTER RUTT, C.E.

Members of Council:

SAMUEL DIXON.
PROF. T. G. B. OSBORN, M.Sc.
PROF. R. W. CHAPMAN, M.A., B.C.E.
W. HOWCHIN, F.G.S. (Editor and Representative Governor).
E. ASHBY.
R. H. PULLEINE, M.B.

Auditors:

W. L. WARE, J.P. H. WHITBREAD.

CONTENTS.

Page.

Howchin, W.: A Geological Sketch-Map, with Descriptive Notes on the Upper and Lower Torrens-Limestones in the Type District. Plate i. 1

Joshua, E. C., and E. Creed: South Australian Holothuroidea, with Descriptions of New Species. Plates ii. to iv. 16

Cleland, Dr. J. Burton: The Haematozoa of Australian Birds.—No. 3 25

Cleland, Dr. J. Burton: A Further Comparison of the Sizes of the Red Cells of some Australian Vertebrates 38

Chapman, Prof. R. W.: Circum-Elongation Observations for Azimuth 44

Ferguson, Dr. E. W.: Notes on the Amycterides in the South Australian Museum, with Descriptions of New Species. —Part II. 57

Ashton, Howard: Synonymic Notes on a Recent Catalogue of Cicadidae in the South Australian Museum 91

Lea, A. M.: An Insect-catching Grass. Plate ix. 92

Black, J. M.: Additions to the Flora of South Australia, No. 8. Plate x. 94

Cheel, E.: On two New Species of Leucopogon 98

Ashby, Edwin: On the Occurrence in South Australia of two Previously Unrecorded Ferns 100

Lea, A. M.: Notes on Australian Eumolpides (Coleoptera Chrysomelidae), with Descriptions of New Species. Plates v. to viii. 102

Waite, E. R.: A Supposed Incidental Occurrence of a Sucker Fish in Australian Waters. Plate xi. 340

Howchin, W.: A List of Foraminifera and other Organic Remains obtained from Two Borings on the Lilydale Sheep-station 345

Osborn, Prof. T. G. B.: Some New Records of Fungi for South Australia 352

Lower, O. B.: The Lepidoptera of Broken Hill (New South Wales).—Part I. 357

Dodd, A. P.: Australian Hymenoptera Proctotrypoidea.— No. III. 384

Waite, E. R., and A. R. McCulloch: The Fishes of the South Australian Government Trawling Cruise, 1914. Plates xii. to xv. 455

McCulloch, A. R., and E. R. Waite: A Revision of the Genus *Aracana* and its Allies. Plates xvi. to xxv. ... 477

Page.

MALINOWSKI, DR. B.: The Natives of Mailu: Preliminary Results of the Robert Mond Research Work in British New Guinea (communicated by Dr. E. C. Stirling). Plates xxvi. to xliii. 494

WHITE, S. A., and Others: Scientific Notes on an Expedition into the North-western Regions of South Australia. Plates xliv. to lxx.:

- *(a)* Narrative, by S. A. WHITE 707
- *(b)* Aboriginals of the Everard Range, by S. A. WHITE 725
  - Language of the Everard Range Tribe, by J. M. BLACK 732
- *(c)* Mammalia and Ophidia, by E. R. WAITE ... 735
- *(d)* Aves, by S. A. WHITE 740
- *(e)* Stomach Contents of Birds, by A. M. LEA ... 760
- *(f)* Lacertilia, by F. R. ZIETZ 766
- *(g)* Mollusca (Pulmonata), by A. R. RIDDLE ... 770
- *(h)* Arachnida, by W. J. RAINBOW 772
- *(i)* Insecta:—
  - Coleoptera, by A. M. LEA 793
  - Lepidoptera, by DR. A. J. TURNER 801
  - Hymenoptera (Formicidae), by W. M. WHEELER 805
- *(j)* Botany, by J. M. BLACK 823

ABSTRACT OF PROCEEDINGS 843

ANNUAL REPORT 852

BALANCE-SHEETS 854

DONATIONS TO LIBRARY 856

LIST OF MEMBERS 869

APPENDICES:—

Field Naturalists' Section: Annual Report, etc. ... 872

Twenty-seventh Annual Report of the Native Fauna and Flora Protection Committee of the Field Naturalists' Section of the Royal Society 879

Malacological Section: Annual Report, etc. 882

INDEX 883

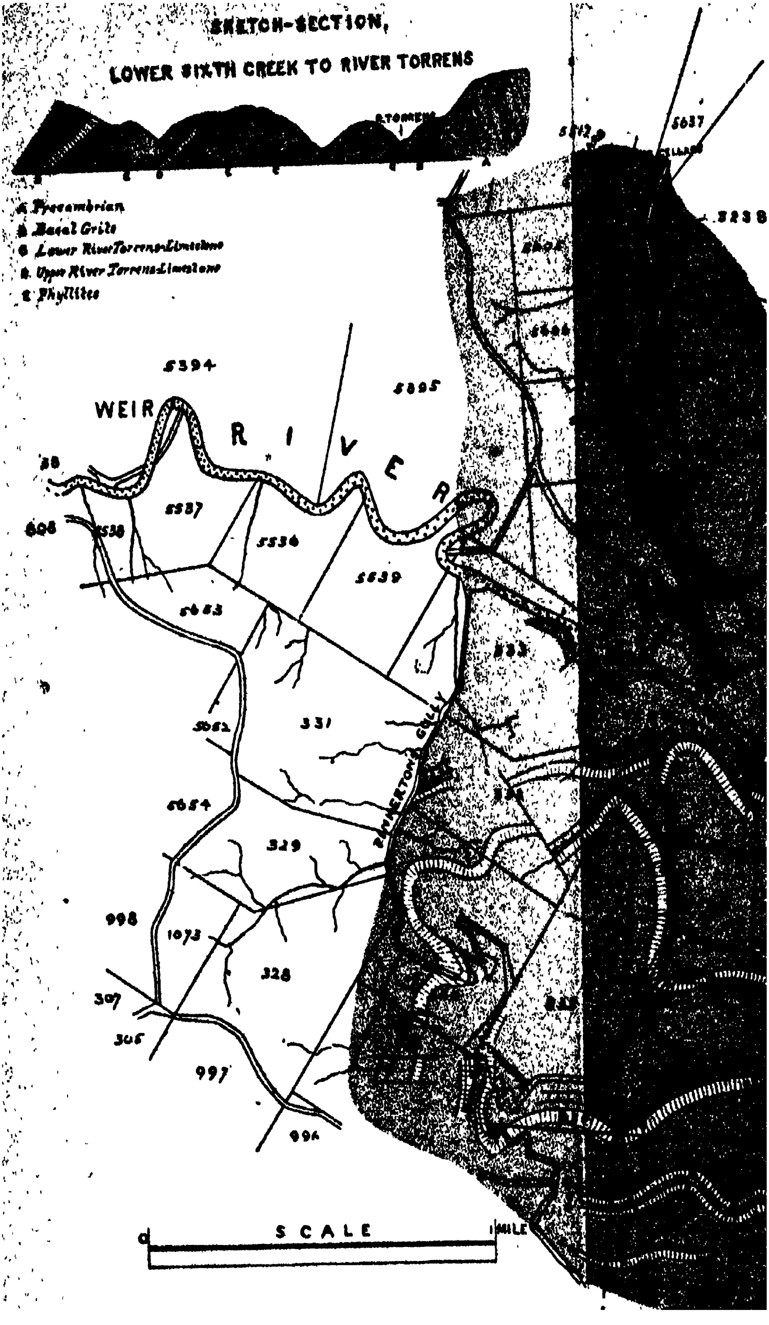
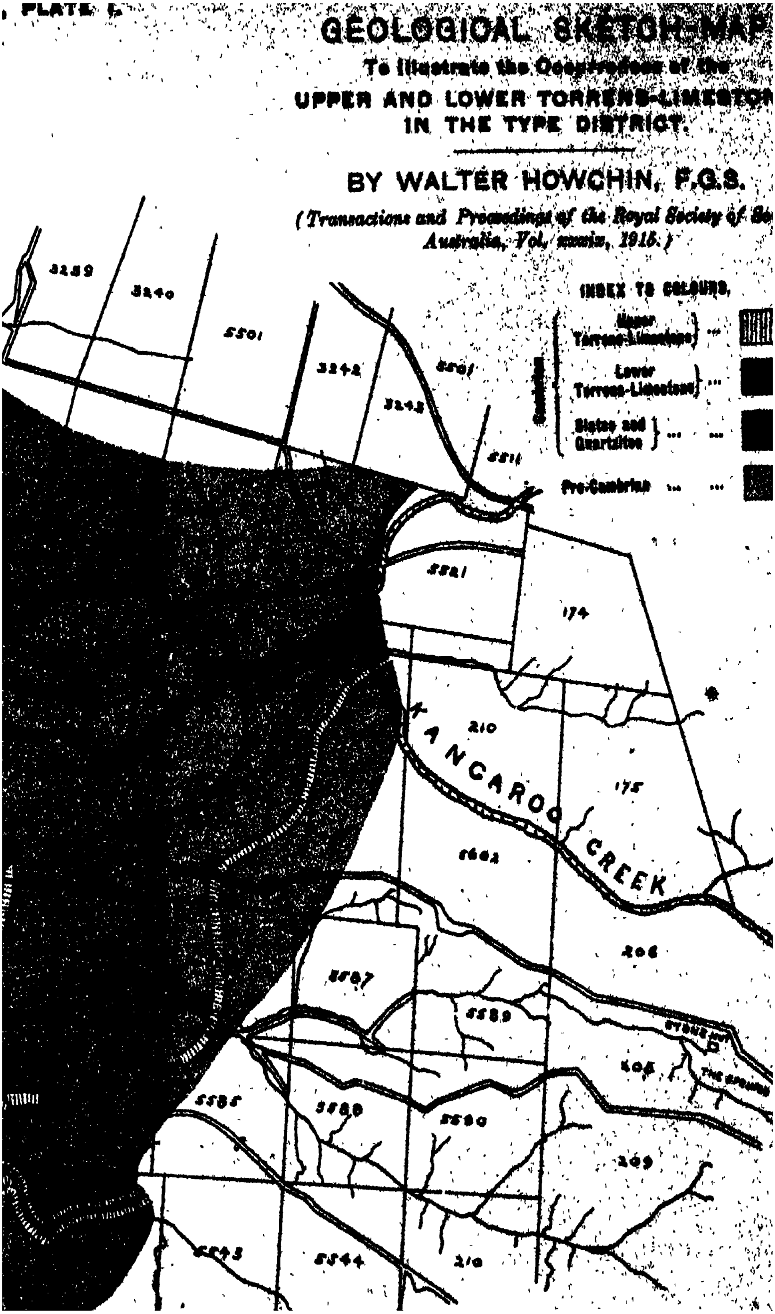

SKETCH-SECTION,
LOWER SIXTH CREEK TO RIVER TORRENS
R. TORRENS
A Precambrian
B Basal Grits
C Lower River Torrens Limestone
D Upper River Torrens Limestone
E Phyllites
WEIR
RIVER
5394
5395
5537
5538
5536
5539
5653
5652
331
5654
329
998
1073
328
307
306
997
996
606
38
5612
5637
3238
PINKERTON'S GULLY
SCALE
0
1 MILE

PLATE I.



GEOLOGICAL SKETCH-MAP

To Illustrate the Occurrence of the

UPPER AND LOWER TORRENS-LIMESTO

IN THE TYPE DISTRICT.

BY WALTER HOWCHIN, F.G.S.

(Transactions and Proceedings of the Royal Society of So
Australia, Vol. xxxix, 1915.)

THE

Transactions

OF

The Royal Society of South Australia.

Vol. XXXIX.

A GEOLOGICAL SKETCH-MAP, WITH DESCRIPTIVE NOTES ON THE UPPER AND LOWER TORRENS-LIMESTONES IN THE TYPE DISTRICT.

By WALTER HOWCHIN, F.G.S., Lecturer in Geology and Palaeontology, University of Adelaide.

[Read April 8, 1915.]

WITH MAP (PLATE I.).

The valley of the River Torrens, near the confluence of the Sixth Creek, may be regarded as the type district for the occurrence of the lower members of the Cambrian series. There is less alluvial cover, and consequently less obscuration of outcrops, in this locality than in most places where similar beds occur. On the other hand, the disturbed condition of the country makes it very difficult to follow and define the respective beds, as their continuity is repeatedly broken by faulting, and the faulted segments are more or less displaced, repeated, or obscured. Yet it is hoped that the geological map which accompanies this paper will be found, at least, approximately correct.

PRE-CAMBRIAN MASSIF.

The township of Houghton is situated almost immediately on the western boundaries of the Pre-Cambrian outcrops, and from there the line of junction between these fundamental rocks and the Cambrian series runs southerly, a little to the east of Goodwin Creek (Deep Creek), which latter flows in a north and south direction, forming a junction with the River Torrens just above the confluence of the Sixth Creek. The Pre-Cambrian rocks cross the Torrens a little east of the outlet of Goodwin Creek, in Sec. 5598 (Hd. of Onkaparinga), and, after entering Sec. 335, recross the river to its northern banks, in a north-easterly direction, about half a mile below the confluence of Kangaroo Creek.

The Pre-Cambrian country, in proximity to the river, is extremely rough, thickly wooded, forming a high-level plateau which, in physical features, is strongly differentiated from the Cambrian rocks that fringe the area. It is here that the river has cut the deepest and most impressive of its gorges. The hard crystalline rock forms the chief barrier to the river's action in establishing a uniform grade. On the left bank the rocks rise to about 500 ft. above the river-bed, whilst on the right they reach about twice that height, in precipitous and dark-coloured frowning walls that cannot be much less than 1,000 ft. in height. This very bold river scarp is known locally as the "Devil's Staircase."

The Pre-Cambrian rocks, as exposed in the river section, consist of highly pegmatized schists, which pass into gneissic rocks. The hardness of the rocks has limited the lateral action of the river. The gorge is narrow, the sides and bottom are deeply grooved and sculptured. Numerous pot-holes of all sizes up to 6 ft. in diameter, and often very deep, cover the uneven floor, and have even been excavated on the sides of the cañon. The severe corrasion by the stream has carved the rocky floor into graceful curves, and has smoothed and polished the surfaces. The finest part of this gorge is where the river takes a sharp turn to the south, in Sec. 5495 (Hd. of Yatala), from which point there are tumultuous rapids, ending in a water-hole that carries the name of the "Devil's Hole."

CAMBRIAN.

Between the Aldgate Pre-Cambrian inlier and that which outcrops in the River Torrens, near Castambul, there is a distance of eight miles. The intervening country consists of the lower members of the Lower Cambrian series. In the locality dealt with in this paper the Cambrians run out against the older rocks and form a semi-circle of outcrops around the southern end of the Pre-Cambrian massif, as explained below.

BASAL GRITS, ETC.

The basal beds of the Cambrian here, as for the most part elsewhere, consist of coarse arkose grits. The fragments of felspar are often large, angular, sub-angular, or rounded; as also are the quartz grains. The beds are coarsest near the bottom of the series, and pass up into finer material as quartzites of the normal type. The junction of these bottom grits with the Pre-Cambrian can be well seen along the western limits of the Pre-Cambrian, on both sides of the river. In Sec. 5598 (Onkaparinga) the line of junction follows, mainly, a small lateral creek, the Pre-Cambrian gneissic beds being exposed on the northern banks of the creek and the basal grits on the southern side. The line of demarcation is here, however, a little irregular, as the northern side forms a dip-slope and the removal by denudation of the overlying grits has been partly determined by the lie of the ground. The basal beds can be traced along the flanks of the ridge on the south side of the Torrens, through Sec. 335 (Onkaparinga) down to and across the river at the "galvanized-iron hut," not far from Kangaroo Creek.

LOWER TORRENS-LIMESTONE.

There are two limestones near the base of the Cambrian series. These can be distinguished from each other by their lithological features, as well as their stratigraphical position in the series.

The lower limestone is a granular, crystalline, white and buff-coloured rock, generally more or less schistose with sericitic faces and small flakes of talc. The bed is over 100 ft. in thickness and is moderately uniform in composition, but is broken by numerous bedding-planes and joints.

This limestone, like the basal grits, skirts the Pre-Cambrian massif in a roughly semi-circular contour. Its most northerly position in this locality, known to the writer, is at Highercombe House (Sec. 5520, Yatala), where it was proved in sinking a well in the kitchen of the house. From this point it can be traced southwards, through Highercombe orchards and along the western banks bordering Goodwin Creek, down to the River Torrens, where it is seen in the angle of the river in Sec. 334 (Onkaparinga). This is, perhaps, the most important outcrop of this limestone in the district, and is known as "Marble Bar." The limestone makes a wide spread in the bed of the river, taking the form of three parallel ridges of rock, covering an area of about 100 yards wide. *(a)* The central ridge is at the acute bend of the river where Goodwin Creek joins the main stream. The strike is north-west and south-east, with the dip at south-west. The stone is very much contorted and broken, apparently from overthrusts from the north-east. *(b)* Another prominent outcrop, or ridge, of the marble occurs a short distance to the eastward of the bend, and crosses the river with a strike north, 20° west, with dip westerly. *(c)* The third outcrop occurs in the river, on the western side of the bend, about 60 yards lower down the stream, where it crosses to the left bank of the river and is overlain by quartzite. The base of the marble beds can be seen a little higher up the river from the bend mentioned above, where the stone, while still calcareous, becomes strongly arenaceous. This is near the junction with the bottom grits into which the bed passes. The arenaceous limestone has a dip 30° south of east, at 30°.

A few yards higher up the river the basal grits outcrop with a low angle of dip to the south. We have there an instructive illustration of the effect of the Pre-Cambrian massif on the lie of the basal beds of the Cambrian. In Goodwin Gully, the dip of the beds is west; at the angle of the Torrens, the dip becomes south-west; and in the case of the grits, which skirt the southern side of the massif, the dip is south.

The Lower Torrens-limestone, which in its eastern extension runs almost parallel with the river, is greatly broken by faulting. There are three such fragments in Mr. Hersey's and Mr. F. Batchelor's grounds, within half a mile of "Marble Bar." (See Geological Map.) These fragments are as follows:—(1) The "Marble Bar," in the bed of the River Torrens, which can be traced by slight surface indications in a south-easterly direction to a small excavation for ironstone—the limestone having been metasomatized into limonite at the fault-plane, which cuts the limestone transversely. (2) A fragment on the respective borders of Messrs. Hersey's and Batchelor's properties, and is cut off to the east as it touches the old road going up the ridge. (3) In Mr. Batchelor's orchard, where it also passes over the old ridge-road and runs out in the paddock on the opposite side of the road, with much ironstone at the surface.

From this point the limestone is cut off on its eastern side by quartzites, which form the high ground between Batchelor's gully and the galvanized-iron hut valley, along which ridge the old easterly road runs. On the eastern limits of the quartzites the bottom limestone is met with again, near the saddle passing over into the galvanized-iron-hut valley. (Sec. 335, Onkaparinga.) The limestone follows the eastern side of the valley to the dividing fence, beyond which a segment is slightly faulted—thrown south by about its own width

—and is again faulted by a throw to the north, making in all a very extensive outcrop. The eastern limb then follows the bank down to the River Torrens, where it makes an important scarp. (Dip, 20° south of east, at 40°.) It crosses the river to the right bank and forms a cliff along the straight reach of the river to within a short distance of the outlet of Kangaroo Creek. It is here a dip-slope to the river at 50°.

An isolated fragment of the Lower Torrens-limestone occurs at the first turn of the river (Sec. 333) below the Sixth Creek. The new road has cut into the beds and exposed them for a distance of 13 chains. The stone is a white, grey, and yellow marble (similar to that at "Marble Bar"), of cryto-crystalline structure, much stained by ferro-manganese dendrites. In the bed of the river, on the opposite side of the road, a coarse calcareous grit outcrops parallel to the strike, and is probably at the base of the limestone beds. This bed appears to be on the same horizon as the siliceo-calcareous rock noted in the succession at "Marble Bar," referred to above. The limestone is circumscribed by faults. A fault, which is in a line with the river, brings it into juxtapositon with the overlying phyllites. A second fault occurs on the opposite side, where it is backed by quartzites and phyllites, and is marked by a great development of metasomatic ironstone. On the western limits the limestone overthrusts a portion of the phyllites, which occupy a higher horizon, and the base of the limestone along the line of junction is sheared, changed to a dark colour, and has been leached of much of its calcareous content. A gradual change of dip also takes place in the direction of the thrusts. At the eastern end the dip of the limestone is 20° west of south, at 45° ; but as it approaches the disturbed area the dip gradually increases to 76°, and swings round to the south and some points east of south. The phyllites which are thus overthrusted are greatly bent, contorted, and crushed.

Immediately overlying the Lower Torrens-limestone is a thick series of slates that include two zones of quartzite. The upper quartzite is about 12 ft. in thickness and the lower bed about 15 ft. in thickness. These beds can be well seen behind Mr. Smith's house, and they occupy the high ground included within the important southerly bend of the river at the confluence of the Sixth Creek. The lower of these quartzites runs parallel with the Lower Torrens-limestone, and is a good indication for its adjacent presence. It can be traced in this position across the Torrens and through Hersey's and Batchelor's grounds.

THE UPPER TORRENS-LIMESTONE.

The Upper Torrens-limestone is, as a rule, bluish in colour and somewhat slatey; but in places it takes on a more calcareous form and becomes subcrystalline. It is an impure limestone, with much earthy and siliceous matter included, and, under weathering, exhibits wavy mineral lines in relief. It also carries black cherty-quartz, both as nodules in the limestone and also as cherty bands. The latter are sometimes found as surface stones when the calcareous contents have been largely removed by solution. It is often found along depressed surfaces, the limestone having suffered greater waste than the associated siliceous beds. When this limestone forms scarp-faces the stone has a characteristic black surface, arising from the growth of a dark-coloured lichen on the face of the stone. The more calcareous portions are interbedded with a dark-coloured, carbonaceous-looking blue slate, which is often a guide to the discovery of the blue limestone in the adjacent rocks. At Teatree Gully (1) it is quarried, burned, and manufactured into a lime-cement.

In the much-faulted district of the River Torrens, now under description, the blue limestone is greatly interrupted and follows many diverse lines of strike. The general trend is that of an outer circle to the Lower Torrens-limestone in investing the Pre-Cambrian massif, and in its erratic course sometimes approaches very close to the lower limestone, but in other places becomes far removed from it. The steep, hilly country has also had something to do with determining the erratic nature of the strike. An examination of the geological map (facing page 1) will make this clear.

Montacute.—An important outcrop of these beds is found at the top of the "Corkscrew," on the ridge at the back of Montacute Church, where it has been quarried for road metal (dip south-east at 50°). It can be followed for some distance on the western side of the hill, parallel to the road that descends from the hill-top towards Adelaide. Another outcrop, about on the same level, is seen just inside of the fence of Mr. Curnow's garden (Sec. 833, Onkaparinga), as well as on the road adjoining, that goes down to Pinkerton Gully. The limestone is of a buff colour on the exterior, but is blue within. At about 100 ft. lower in the series another outcrop of blue limestone occurs, 45 ft. in thickness (dip south-east at 40° to 48°), and can be well seen in the cutting on the old "Corkscrew" Road. On the new "Corkscrew" Road the same beds are strongly developed at what is known as the "blue-bend," where they have been excavated in the construction of the road. The scarp shows the limestone to be split up by impure, earthy, and schistose bands, with layers of cherty material (dip south-east at 20°). This exposure is at a considerably lower level than the two outcrops mentioned as occurring at Montacute Church and on the edge of Pinkerton Gully. It is possible that this low-level outcrop may be the result of the great landslip that occurred in prehistoric times and caused the precipitous cliff on the eastern side of the ridge. It is the greatest landslip that I have hitherto seen. At the base of the remarkable scarp, left by the slide, an extraordinary medley of piled-up rocks occurs, through which the older "Corkscrew" Road was cut, and its effects can be traced to the level of the valley below. A fault-plane may have existed and created a line of weakness from which the imperfectly supported rocks on the side of the steep valley slipped away.

---

(1) In my Geology of the Mount Lofty Ranges, pt. ii., Trans. Roy. Soc., S.A., vol. xxx. (1906), p. 239, I erroneously referred the blue limestone of Anstey Hill and Teatree Gully to the "blue metal" limestone, which it much resembles; but the latter occurs higher in the series. The "blue metal" limestone outcrops along the western slopes of the foothills, further to the south. The occurrence of a similar limestone at Teatree Gully was referred, in the first instance, to the same geological horizon, a mistake that might easily follow from the disturbed and complex arrangement of the rocks that occur at that point.

The "Corkscrew," Hunter Gully, Montacute Mine, etc.—Between the Montacute ridge and the old Montacute Mine there are several parallel outcrops of the Upper Torrens-limestone. It is not very clear whether these several calcareous horizons are independent beds, and follow in consecutive order, or whether they are repetitions of the same bed caused by strike-faulting as occurs in other parts of the field. The limestone is of very irregular development, varying from a calcareous shale to lenticles of hard crystalline limestone. In this way there is often an apparent want of continuity in the limestone, and calcareous horizons may develop within the range of a considerable vertical thickness, which occasions some difficulty in mapping. There are three such limestones in the locality now under description, and it will be convenient to refer to them respectively in ascending order as limestones *a*, *b*, and *c*.

Outcrop *(a)*. From the hill-top, near Montacute Church, the blue limestone can be traced along the southern side of the valley, going down the "Corkscrew," and faces into Mr. Trebilcock's garden (Sec. 834). It crosses the spur near the bottom of the valley (Hunter Gully), and passes up and over the ridge on the opposite side (Sec. 5525), making strong outcrops in places. In the next gully (Cock's), going east, it is obscured (on its western side) by deep soil and orchards, but was proved in the well-sinking at the bottom of the valley, and it can then be traced up on the eastern side to the prominent ridge in which the old Montacute copper mine is situated (Sec. 5584). This ridge is steeply truncated on its northern side (probably a fault face), showing a scarp of about 200 ft. in height. The section seen on this face, in ascending order, is as follows:—*(a)* slates, *(b)* strong quartzite, *(c)* thin slates, *(d)* blue limestone, *(e)* thick slates. The quartzite and limestone together make a bold, precipitous face. On the western edge of this scarp the limestone is very strong, with a white crystalline texture, and has been quarried to a slight extent. On the eastern side the limestone passes down to the Sixth Creek in massive beds, and varies from a bluish, earthy limestone to a white, marble-like rock. The country is much disturbed and mineralized, and the limestone appears to have been locally altered under these special circumstances.

The beds on the Montacute Mine hill have a general dip to the south, at a low angle, but on the eastern side there is a sharp downthrow to the east. On the old roadway that goes up to the workings on the eastern side of the hill, above the Sixth Creek, the quartzites have a dip south, at 50°. This is immediately followed by a sharp pitch to the south-east, which carries the limestone by a dip-slope down to the creek below. The limestone here dips south-easterly, and as the strike accords very nearly with the direction of the creek the former makes a spread of 130 yards. The limestone passes to the opposite bank, a few feet above the creek level, and then disappears under the overlying phyllites (dip south-east, at 28°). This change of dip and strike at about the meridian of the creek is probably accompanied by a fault.

The Montacute Mine is located near the fault; or, perhaps, along the lines of a series of small faults. The development of quartz veins and vein-stones, in addition to the change of strike, suggests the presence of faults. Copper sulphides occur freely in the vein-stone, and have been partially dissolved and carried by percolating water through the adjacent slates and quartzites, the colouring of which by green carbonate films has prompted much abortive prospecting in poor country. On the eastern edge of the hill a long stope, open to the surface, has been worked along the angle of downthrow to the east.

The limestone on the eastern pitch (which is best seen in the gorge cut by the creek) has been considerably altered, probably by mineral waters rising through the fractures. The limestone has been changed from a bluish and earthy limestone to a white, crystalline, marble-like stone, with free developments of quartz and calcite. In places the stone is coloured brown, or becomes metasomatic by the presence of iron.

The hill on the eastern side of the Sixth Creek consists of the overlying phyllites, but in the succeeding valley of the Little Creek (a tributary of the Sixth Creek), at about three-quarters of a mile distance, the limestone again makes its appearance half a mile below the house of Mr. Brooks. From this point it rises with the ground in a north-easterly direction, through Sec. 5586, crosses the old sheep station (The Springs) road on the ridge (Sec. 336), from which position it passes over into the head of the gully on the opposite side of the road, skirts the ridges, and passes down to Kangaroo Creek, which it crosses (dip east 20° south, at 40°) within a short distance of the latter's confluence with the River Torrens, and after passing up the right bank of the creek strikes the Torrens at Anstey's old copper mine.

The beds associated with the blue limestone can be well seen throughout the greater part of this line of outcrop. The limestone is underlain by slaty beds that have a variable thickness of a few feet up to 50 ft. These slates rest on a strong and, for most of the way, very prominent quartzite, which is well exposed on both sides of Hunter Gully, and passes over into Cock's gully, and forms the chief feature in the scarp at Montacute Mine. Its greatest development is, however, after it rises from Little Creek and passes the Springs Road into the slope towards the River Torrens, where it makes bold mural scarps about 50 ft. in thickness. Below the quartzite is a slaty rock, sometimes flaggy, including quartzites of inferior thickness. Overlying the blue limestone are very thick slates or phyllites, including the additional limestones described below.

Outcrop *(b)*. Parallel with the last described line of outcrop of the blue limestone, about 300 yards higher up the gully (Secs. 835 and 5527), is another outcrop of very similar character and strike. It is seen on the private road just above the house of Mr. Robert Hunter,(2) where it has been quarried for road metal. The limestone and associated impure beds are about 30 yards in width, with a dip to the south-east which varies from 46° to nearly 90°. The limestone is divided into two by a band of slate (or phyllite), which is of variable thickness, from a few feet up to 30 ft. or 40 ft. The outcrop can be traced across Hunter Gully and over the eastern ridge. On this ridge the limestone has a considerable spread, and the intervening phyllites have been somewhat altered by the intrusion of quartz veins, which has given these beds a hard and siliceous texture, and developed in connection with the limestone much black cherty-quartz. This hardening of the beds has led to their making prominent features on the top of the ridge.

---

(2) I must express my obligations to Mr. Robert Hunter, whose intimate knowledge of this locality has been of much service to me in following the outcrops, more particularly where they are obscured by orchards and other cultivated ground.

The beds can be easily followed down the eastern slopes into Cock's gully; the irregularities of the strike (as shown on the map) are occasioned by the beds following around the projecting spurs at the head of the gully. They next pass over the saddle of the Montacute Mine ridge, where the limestone just touches the east and west boundaries of Secs. 5528 and 5584. From thence it slopes very gradually, at a low angle of dip, along the eastern side of the hill, which carries it to the south of the northerly bend in the Sixth Creek (Sec. 5529) and into a north and south valley, which has its confluence with the Sixth Creek at the bend just referred to. The outcrop along the slope is somewhat obscured by bracken thickets, but it can be followed by surface stones, and about half-way down the hill it is seen in strong features at a prospector's costeen.

The limestone can be well seen on the opposite side of the valley, but at a different angle. A small fault (probably an extension of the same as that in which the Montacute Mine is situated) has led to differential readings of dip and strike on either side of the valley, and has given a southerly thrust to the beds on the western side of the fault. On the eastern side the dip is south-east, at about 28°, while on the western side the dip is south, at 18°.

The easterly trend of the limestone, from this point, can be easily followed through Sec. 5529, where it follows the face of the hill, parallel with the Sixth Creek, and crosses the latter a little before it makes a westerly bend near the eastern side of the section mentioned. A quartzite underlies this limestone and forms a low scarp that can be followed for most of the distance from the eastern side of Hunter Gully, over the saddle of the Montacute Mine ridge, and to the limits of its outcrop, described above.

Outcrop *(c)*. A third bed of bluish limestone occurs in Hunter Gully, a little higher up than Limestone *(b)*. It crosses the gully, but appears to run out on the eastern ridge near the eastern boundary of Sec. 5527. In the north and south valley (referred to above), confluent with the Sixth

Creek at its sharp northerly bend, fragments of blue limestone were seen in the dry watercourse, and were traced for about half a mile above the spot where the *(b)* limestone crossed the valley. These boulders certainly indicate another band of limestone higher up the valley, which may prove to be Limestone *(c)* in its easterly extension.

Sixth Creek and Pinkerton Gully.—The steep face on the northern side of the Montacute Mine hill is probably a fault-scarp—the fault being east and west and parallel with the strike of the beds—and is cut on its eastern limits by the mine-fault (already described), which has a north-north-west by south-south-east direction. A shaft recently sunk on the flat in front of the hill proved the blue limestone at a depth of 60 ft., which, in relation to the same limestone in the scarp of the hill, shows a vertical displacement of over 200 ft. As the material thrown out from the shaft contains limestone broken by quartz and calcite veining, together with some sulphides, it has evidently been sunk either on or in close proximity to these faults.

Taking the new shaft on the flat (just referred to) as our starting-point, we find the blue limestone series outcrops a little to the west, on the public road (dip east, at 50°). The beds can be followed at the water level of the Sixth Creek, through Mr. T. T. Trebilcock's garden, where the strike of the beds is south-east, with a low angle of dip, the latter being apparently influenced by a lateral thrust at this point. The limestone is seen again at one or two points on the Montacute Road, before reaching the road on the right (which branches off to Castambul), and cuts across the fork separating these two roads. It then becomes a marked feature in the left bank of the Sixth Creek, where it shows a strike parallel with the creek and outcrops nearly level with the water's edge, until shortly before reaching Mr. Walter Smith's sawmill on the creek. Here the beds are thrown to an upcast, which alters the strike, causing the limestone to make a return bend, when, rising to the hill on its left bank, it crosses over into Pinkerton Gully. Before reaching the crest of the hill, however, its continuity is broken by a dip fault, which throws the beds to the north-west. On passing into Pinkerton Gully, the limestone skirts the head of a small tributary to the main valley, forming a strong mural scarp, and, rounding the spur along the face of which the Pinkerton "screw-road" passes, develops an extraordinary scarp face of about 150 ft. (the greatest thickness of these beds that have come under my observation), and then, having reached the bottom of the "screw," passes up the valley towards the head of the gully.

Near the dividing fence, between Secs. 330 and 832, the limestones are faulted against the slates, the latter forming the outcrops until, near the head of the gully, the limestones once more make their appearance. They form two parallel outcrops, one seen in the orchards at the head of the gully, and the other a short distance to the east, where it outcrops on a private road and along the spur on that side of the valley. These are but two small isolated fragments, for they are once more cut off by the slates and quartzites which form the ridge near the top of the Montacute "Corkscrew."

If we retrace our steps to the Sixth Creek, we find that between Mr. Walter Smith's water-mill and the River Torrens another much-faulted area occurs. A group of dismembered fragments of the blue limestone are found on both sides of the creek, which, notwithstanding their irregular distribution, may be regarded as being roughly parallel with the outcrops just described as following the Sixth Creek and Pinkerton valleys. On the west side of the Sixth Creek, a little lower than the water-mill, a strike-fault repeats the beds, and the blue limestone once more rises from the water-level and strikes up the side of the hill for a short distance, when it is cut off by another fault, almost vertical on the rise, which can be easily followed by the eye on account of its "magpie" features—white quartz and slate-breccia sharply defining the fault-plane. The limestone is thrown up at a sharp angle in sympathy with the high angle of dip in the faulted block, and becomes attenuated along the fault-plane as it passes up to the top of the ridge, where it can be seen in Sec. 332, in a line with the old north-west fence. A small fragment that outcrops in the same section, near the bottom of Pinkerton Gully, appears to be on the same strike, and has been cut by the same strike-fault.

Returning once more to the Sixth Creek, we examine the steep ridge that occupies the fork between the junction of the Sixth Creek and the River Torrens. On the creek road, near the water-mill, we find an outcrop of the same limestone, which rises to the hill on the east side of the valley, and crosses the ridge at the saddle, passing over to the other side in Mr. Hersey's grounds, and just enters Mr. F. Batchelor's property on the west side of Sec. 335, where it is faulted. It can be picked up again, at a little lower level, on the side of the hill, but continues only for a short distance, when it is again faulted in two segments, following each other in steps, and is then cut off by slates near the top of the ridge. At the summit a prominent quartzite is developed, which passes down the ridge in the direction of Montacute Mine, showing mural scarps that end in a bold, steep face to Sixth Creek, in Mr. T. T. Trebilcock's garden, referred to above. The blue limestone lies on the eastern side of this quartzite, and can be traced from the top of the ridge, on Mr. Batchelor's property—first, only by occasional surface stones, but it gathers strength as it descends towards the bottom of the hill (Sec. 5523), where it becomes a distinct and broad outcrop. At high-level the strike of the limestone is 10° east of north, but as it descends towards the valley it swings round to north-east, with a south-westerly dip at a high angle. The limestone reaches the Sixth Creek near Mr. Trebilcock's house, and is cut (like the same limestone a little higher up the stream) by the north and south fault of the Montacute Mine. In this way the blue limestone makes an almost complete circle of the lower portions of Sixth Creek, following the left bank from Mr. Trebilcock's garden as far as Mr. Smith's water-wheel, and then returning by the right bank of the stream to nearly the same spot in Mr. Trebilcock's garden, from which it started.

GENERAL CONSIDERATIONS.

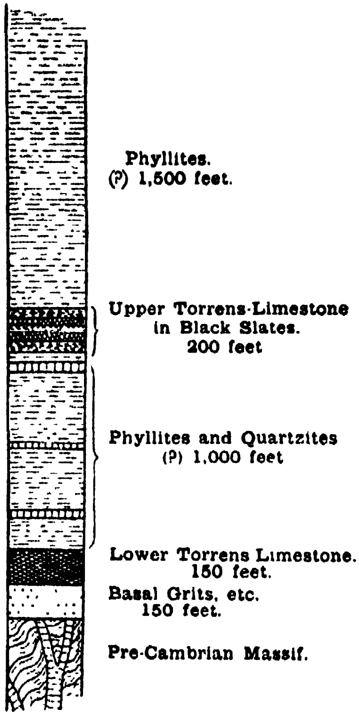
The two main geological systems developed in the district exhibit marked differences in physiographical form. The Pre-Cambrian massif stands out in bold relief. Viewed from the hills on the southern side—as, for example, from the top of the "Corkscrew," or from the ridges that enclose Pinkerton Gully—it has the appearance of a tableland, edged with dark-coloured, frowning rocks and thick scrub, rising to a height of about 1,000 ft. above the level of the River Torrens, which has dissected a southern fragment from the main mass. The surrounding Cambrian beds are distinguishable from the Pre-Cambrian complex by a sharply-defined passage into open grass lands, gardens, and cereal cultivation. It is probable that this great Pre-Cambrian inlier formed a monadnock when the old peneplain passed below base-level at the beginning of the Cambrian period. The lowest members of the Cambrian series encircle the older land-form, and have been built up by its waste. Near the points of junction between the two systems the Cambrian beds dip away from the Pre-Cambrian inlier in a curvilineal fashion, but at some distance away from the base, the phyllites, as seen on the new road along the Torrens gorge, have an easterly dip. Thus, just beyond the limestone that outcrops at the sharp angle in the road below the confluence of the Sixth Creek, the phyllites dip south-east, at 35° ; a little further west the dip becomes 10° north of east, at 24°, and at the sharp north-east bend, in Sec. 5539, the dip is 20° north of east, at 24°.

An important factor in the tectonic phenomena has been, no doubt, the strong and unyielding Pre-Cambrian massif, which led to differential movements and fractures in the overlying beds. The Cambrian rocks give evidence, in many places, of powerful thrust movements operating from the east. These are well seen in the phyllites exposed in the cuttings on the new road through the Torrens gorge. Large folds, overfolds, and crush-zones occur, with plentiful splashes of quartz, which often take the form of augen structure. The Cambrians have been forced forward, and as the Pre-Cambrian floor possessed greater stability and, consequently, less susceptibility to movement, the newer series dragged on the surface of the older, and became thereby much faulted and dismembered. This seems to be the explanation of the exceptionally broken condition of the rocks within the district, especially near the basement.

The two limestones (described in this paper) which occur near the base of the Cambrian series form excellent horizons for sectional determinations. The two principal quartzose horizons within the area described are—*(a)* the basal grits and quartzites, which underlie the Lower Torrens-limestone; and *(b)* a hard siliceous quartzite, which is inferior to the Upper Torrens-limestone, and is separated from it by a slaty zone of about 25 ft. in thickness. This quartzite is a useful indicator for the upper or blue limestone, as, from the greater solubility of the latter, it is sometimes inconspicuous or masked in the outcrop. There are two smaller quartzites sometimes seen in the phyllites which separate the two limestones, as already described, but these are relatively thin and unimportant. Above the upper limestone the phyllites are very thick, but it is difficult to estimate their true thickness on account of the crushed condition and frequent faulting of the beds.

The remarkable variations that occur in the strike of the beds, within the district, are partly due to the comparatively low angle of dip, in many places, together with the very hilly nature of the ground. Narrow valleys and steep gorges intersect the old peneplain, giving rise to tortuous outcrops and repetitions. In consequence of this irregularity in the outcrops the descriptive notes may appear, I fear, somewhat laboured and tedious, but under the circumstances could scarcely be avoided. Whatever difficulties might have been experienced in following the descriptions, it is hoped will be obviated by references to the map which accompanies this paper.

The following sketch gives a vertical section of the beds, with a rough estimate of their thickness: —



DESCRIPTION OF PLATE I.

A Geological Sketch-map to illustrate the occurrence of the Upper and Lower Torrens-limestones in the Type District.

SOUTH AUSTRALIAN HOLOTHUROIDEA, WITH DESCRIPTIONS OF NEW SPECIES.

By E. C. JOSHUA and E. CREED.

(Communicated by Dr. E. C. Stirling.)

[Read November 12, 1914.]

PLATES II. TO IV.

The material which forms the basis of this paper is a collection of Holothuroidea in the possession of the South Australian Museum, Adelaide, and was kindly placed at our disposal by the Honorary Curator, Dr. E. C. Stirling.

The majority of the species represented was collected by Dr. J. C. Verco from an area which may be regarded as lying between latitudes 33° and 37° S. and longitudes 132° and 140° E.

We have to note seventeen species from South Australian waters; this number includes two species not represented in the collection, but which are recorded by Lampert ⁽¹⁾ as having been collected at Adelaide.

We describe four species which we believe to be new to science.

The following is a list of the Holothurians included in this paper:—

Holothuria hartmeyeri, Erwe.
Holothuria, sp. indeterm.
⁽²⁾ *Holothuria fusco-cinerea*, Jäger.
⁽²⁾ *Holothuria vagabunda*, Selenka.
Stichopus ludwigi, Erwe.
Cucumaria squamata, Ludwig.
Cucumaria inconspicua, Bell.
Cucumaria striata, n. sp.
Cucumaria mutans, Joshua.
Pseudocucumis bicolumnatus, Dendy.
Phyllophorus ventripes, n. sp.
Thyone vercoi, n. sp.
Thyone, sp. indeterm.
Thyone nigra, n. sp.
Colochirus doliolum (Pallas).
Colochirus quadrangularis (Lesson).
Trochodota allani (Joshua).
Caudina chilensis (J. Müller).

---

(1) Lampert, Kurt, "Die Seewalzen" (In: Semper, Reisen im Archipel der Philippinen, iv., Bd., 3. Abth.). Wiesbaden, 1885.

(2) Not represented in the collection, but recorded by Lampert.

Family ASPIDOCHIROTAE.

HOLOTHURIA HARTMEYERI, Erwe, 1913.

Erwe, Willy. "Holothuroidea," in "Die Fauna Südwest Australiens," Band iv., Lief. 9, Gustav Fischer, Jena, 1913, p. 383.

There are two very wrinkled and contracted specimens which we tentatively identify as belonging to Erwe's species. Their condition is quite inhibitive of a determination of the arrangement of the podia. The spicules, however, appear to agree closely, both in form and size, with those of Erwe's species.

HOLOTHURIA, sp. indeterm.

There are several specimens of a Holothurian the condition of which is inhibitive of a satisfactory identification.

STICHOPUS LUDWIGI, Erwe, 1913.

Stichopus ludwigi, Erwe, p. 388, *antea*.

There is a single example of this species collected in South Australian waters by Dr. J. C. Verco.

The specimen is not in very good condition, the external surface having apparently become somewhat eroded, and it is therefore difficult to determine the arrangement of the podia and papillae. However, the deposits are in good condition in the uneroded portions of the perisome, and are perfectly characteristic of the above species. The length of our example is 120 mm. Colour is fawn, darker dorsally. The dorsal papillae are of a dark-brown tint. The oral opening is placed in a distinctly ventral position, and is surrounded by a rosette-like structure.

Family DENDROCHIROTAE.

CUCUMARIA SQUAMATA, Ludwig.

Cucumaria squamata, Ludwig, 1898, "Holothurien"; in "Ergebn. der Hamburg," Magalhaensischen Sammelreise, Hamburg.

There is one specimen from Encounter Bay. It is of interest to record this species for South Australia.

This specimen is in an excellent state of preservation, and is quite in accord with Ludwig's description, both as to podial distribution and spiculation.

CUCUMARIA INCONSPICUA, Bell.

1887, Bell, F. Jeffrey, "Holothuroidea, Descriptions of New Species." Proc. Zool. Soc., London, June 21.

1914, Joshua, E. C., "Victorian Holothuroidea, with Descriptions of New Species." Proc. Roy. Soc., Victoria, vol. xxvii. (new series), part i., Melbourne, 1914.

There are three specimens collected by Dr. J. C. Verco. One of us has already commented on the evidently close relationship between this species and *Cucumaria parva*, Ludwig. The South Australian specimens appear in all respects similar to those collected in Victoria.

CUCUMARIA STRIATA, n. sp.

The two specimens in the collection were obtained by Mr. J. W. Howard in August, 1888, from the Great Australian Bight.

The length is 25 mm. by 12 mm. in breadth. The form is cylindrical, curved dorsally. The podia are confined to the radii, and form on each of the two dorsal radii four fairly regular rows, which diminish anteriorly and posteriorly to two or three rows only. On each of the ventral radii there are five rows, which also lessen in number towards the ends of the body.

The colour of the specimen is inter-radially of a smoky-black, with dirty-white radii, giving a striped appearance.

The calcareous ring is of the usual generic configuration. The deposits are in the form of delicate tables (plate iii., fig. 2), the disc of which is markedly concave, and is perforated with from four to ten holes. The spire, which does not always arise from the centre of the disc, consists of two rods, joined by a transverse beam in the vicinity of the disc, and converging for some distance until they become fused, enclosing a small perforation. Subsequently they again diverge, and terminate in two points only. There is a considerable variation in the number of holes in the disc, but the form of the spire is very uniform. These deposits are not very thickly disposed in the perisome.

The rather striking colouration and peculiar spicules would appear to separate the species from any hitherto described.

CUCUMARIA MUTANS, Joshua.

1914, Joshua *(antea)*, *Cucumaria mutans*.

There are two quite typical young individuals collected by Dr. J. C. Verco. This Holothurian is peculiar from the circumstance that during life (and generally in alcohol) it is, while young and half-grown, of a deep blue-black colour, which almost disappears as the animal advances in age, mature specimens being nearly white.

PSEUDOCUCUMIS BICOLUMNATUS, Dendy.

Journ. Linn. Soc., vol. xxvi., No. 166, "Holothurians of New Zealand."

There is an excellently preserved and very typical specimen of this species collected by Dr. J. C. Verco.

PHYLLOPHORUS VENTRIPES, n. sp. Plate ii., fig. 1.

The collection contains several specimens of a *Phyllophorus* which apparently belongs to a species not hitherto described. They were collected by Dr. J. C. Verco.

Description.—Length, about 60 mm.; shape, fusiform, and truncated anteriorly. The podia are restricted to the mid-ventral region, and are numerous and thickly disposed in both the radial and inter-radial areas; a very small number of imperfectly developed podia may occur scattered outside of the region referred to, but the mid-dorsal region for a space of about 30 mm. by 10 mm. is devoid of any podia or papillae. The calcareous ring consists of ten compound members, both the raidial and inter-radial having posterior prolongations (plate iii., fig. 5).

There are no calcareous deposits in the perisome. The podia are provided at their terminations with cribriform plates and supporting rods. The tentacles, twenty in number and disposed in the typically generic manner, contain stout branched rods having expanded perforated ends which are often bifurcated.

The most remarkable feature of this species is the distribution of the podia. We know of but one other species in which that feature is the same, *viz.*, *Thyone meridionalis*, Bell, and but for the circumstance that the arrangement of the tentacles in our species is quite typical of the genus *Phyllophorus*, we should not have hesitated to identify it with that of Bell, since it agrees well with the latter in all other respects.

THYONE VERCOI, n. sp.

There is a single specimen collected by Dr. J. C. Verco. The animal is of a brown colour, and apparently considerably contracted. Its length is 36 mm., and it tapers both posteriorly and anteriorly, the latter extremity being truncated. The podia appear to be thickly disposed over the whole of the body, but are, perhaps, not quite so numerous on the dorsal surface; no arrangement in rows is discernible anywhere. The calcareous ring is of substantial build, and consists of ten composite members, the radial pieces being prolonged posteriorly. The tentacles are ten in number, the dorsal being about two and one-half times as long as the ventral.

There is a single polian vessel and but one madreporite. Dependent from the anterior region of the interior of the pharynx are over one hundred digitiform processes, the nature of which is discussed elsewhere. The deposits in the perisome consist of cruciform bodies with spinous processes projecting in a plane perpendicular to their surface (plate iii., fig. 1,*a,b,c,d*). The arms of the cross are in some cases produced so as to form a hole. The spicules give one the impression of being in a developing stage. The species appears to differ from any previously described, but *Thyone sacellus*, Selenka, would seem to be a near relative. The latter, however, differs in the form of the calcareous ring, and, moreover, the spicules of our present species could not very well, even if they be regarded as not fully developed, proceed to the form of those found in *T. sacellus*.

THYONE, sp. indeterm.

There is a single specimen of a *Thyone*, in which calcareous deposits are completely wanting. Their absence from the perisome would not be regarded as inhibitive of a determination, but as they have in this case disappeared from the tube-feet, where there is some evidence of their having been previously present, we do not care to endeavour to identify the species.

THYONE NIGRA, n. sp.

One specimen collected by Dr. J. C. Verco.

Description.—Shape fusiform, the posterior and anterior ends being upturned. Podia distributed without arrangement all over the body. Tentacles ten, frondose; the dorsal are about double the length of the ventral. Colour, deep purplish-black, podia white. The calcareous ring consists of ten processes (plate iii., fig. 4), having prolongations posteriorly. Calcareous deposits are thickly disposed throughout the perisome; they consist of tables of two kinds (plate iii., fig. 3). The first, which measure about 0·096 mm. × 0·064 mm., are of an irregular oblong shape; the disc is flat, and is pierced with four large central holes. These form a cross. There are other holes, which are irregularly disposed. The spire of the table is very short; it consists of two rods which are joined only at their extremities, which are spinous. The second kind of table consists of a rhomboidal plate, pierced as in the first-mentioned with four central holes and with a few holes at each extremity. The plate is distinctly concave, the spire is similar to that in the first kind; these rhomboidal plates occur exclusively in the skin of the podia. Internally the anatomy shows no peculiarities; the single polian vessel is, however, very large in proportion to the size of the animal, measuring 3 mm. × 1·5 mm. We believe the above species to have been hitherto undescribed. Ludwig's *Thyone similis* is, perhaps, its closest relative.

COLOCHIRUS DOLIOLUM (Pallas).

For synonymy see Erwe, Willy, *antea*.

Numerous characteristic specimens from various stations. The species evidently has a range embracing the whole Southern Australian coastline.

COLOCHIRUS QUADRANGULARIS (Lesson).

For synonymy see Erwe, Willy, *antea*.

There are two excellently preserved specimens of this well-characterized species. They were collected in the Great Australian Bight by Mr. J. W. Howard.

Family SYNAPTIDAE.

TROCHODOTA ALLANI (Joshua).

(3) 1912, Joshua, *Taeniogyrus allani*.
(4) 1912, Dendy, *Chiridota allani*.
(5) 1913, Joshua, *Trochodota allani*.

A single typical specimen from Kangaroo Island. It is interesting to note the occurrence of this species so far west of its hitherto recorded habitats.

Family MOLPADIIDAE.

CAUDINA CHILENSIS (J. Müller).

For synonymy see "Dendy and Hindle." (6)

This species is represented by over forty specimens collected in various localities off the South Australian coast. Very great variation is exhibited in the size and form of the individuals, and to some extent also in their colour and spiculation. The series furnished specimens of which the largest measured 125 mm. in length and about 60 mm. in breadth, and were of massive build, but with no approach to the caudate character assigned to this species; the colour was yellow, with patches of rusty-pink; the spiculation was perfectly specific, as were also the calcareous ring and the tentacles.

---

(3) On a new Holothurian of the genus *Taeniogyrus*. Proc. Roy. Soc., Victoria, vol. xxv. (new series), part i., Melbourne, 1912.

(4) Jour. of the Quekett Microscopical Club, ser. ii., vol. xii., No. 72, pp. 105 to 107, 1912.

(5) 1914, *antea*.

(6) Jour. Linn. Soc., vol. xxx., Zoology, London, 1907.

At the other end of the scale we got individuals of about 70 mm. in length, white in colour, and markedly caudate, the "tail" portion being one-half the length of the animal, and constricted abruptly at its junction with the body; the ring, ossicles, and tentacles were specific. The remaining specimens furnished links between the two extremes given above.

We do not at present propose to enter upon a taxonomic review of the family Molpadiidae, but would point out that this great variation in form occurring in one species makes it doubtful whether the division into the two genera *Molpadia* and *Caudina* is justifiable.

ON SOME STRUCTURES FOUND IN THE PHARYNX OF *Thyone vercoi*, n. sp.

In making the necessary dissections for the identification of the several species contained in this collection, our attention was drawn to some very unusual structures occurring in the pharynx of *Thyone vercoi*, n. sp. The pharynx, on being opened, displayed a large number (over 100) of small pedunculated processes depending in several somewhat irregularly disposed rows from the whole of its inner surface (plate ii., figs. 2, 3, and 4; plate iii., fig. 1,*e*,*f*,*g*; plate iv.). These processes measured from 2 to 4 mm. in length, and averaged about 1 mm. at their greatest diameter. Their colour was a dead white, and they were very conspicuous. The white colour was shown by microscopical examination to be due to a dense aggregation of calcareous particles, foliaceous in form, and measuring about 0·048 mm. in length (plate iii., fig. 1,*e*,*f*,*g*). These particles coalesced to form a reticulated mass in the interior of the process. After decalcification, longitudinal sections were cut of one of the processes with a portion of the pharyngeal wall from which it depended. The wall of the pharynx was found to be histologically normal; the processes were extensions of this normal tissue, the longitudinal muscles not being, however, continued into them, but proceeding in a direct line along the pharyngeal wall. The connective tissue of the interior of these processes was almost entirely replaced by the mass of ossicles already referred to. The structure cannot be homologized with any part of the recorded anatomy of Holothurians, but a remark by

Ludwig,(7) which we quote herewith, appears to have some bearing on the subject:—

"Hier aber sind noch einige Anhangsgebilde zu erwähnen, welche bei einzelnen Arten vorkommen. So beschreibt Selenka, dass er an je einem Exemplare von *Mülleria mauritiana* und *miliaris* (Quoy und Gaim.) rundum am Ringkanal eine grosse Zahl von kleinen, etwa 2/3 mm. dicken, gestielten Bläschen gefunden habe, welche unmittelbare Ausstülpungen des Ringkanales darstellen. In ihrem Inneren liegen Hunderte von kleinen, ellipsoiden, isolirten Zellen, deren vorderes Ende sich tutenförmig öffnet, während das hintere einen langen Faden trägt: erfüllt sind die Zellen von kleinen Fetttröpfchen. Selenka vermuthet in diesen Zellen parasitäre Gebilde.* Dagegen scheinen die kleinen, zahlreichen Blindsäcke, welche Théel bei seinem *Ilyodaemon maculatus* und anderen Elasipoden am Ringkanale beobachtete, normale Bildungen zu sein.

"*Weshalb (Lampert, pp. 6 and 7) in den oben geschilderten, von Selenka erwähnten Bläschen Steinkanäle sehen will, ist mir ebenso unverständlich wie seine fernere Behauptung, dass jene Bläschen, sicher dieselben Gebilde sind, deren Semper und Ludwig bei Beschreibung neuer Colochirus-Arten Erwähnung thun und die sie als Steinkanäle bezeichnen."

Now in reference to the above remarks we think that there is very little doubt that Selenka's assumption of the parasitic nature of the structure mentioned by him is correct. The bodies he describes and figures closely resemble the sporocytes of a gregarine, an organism, species of which are not infrequently found infesting Holothurians. The real nature of the structure found in *Thyone vercoi*, n. sp., is rendered obscure by reason of the character of the contents of the processes—a very definite aggregation of calcareous spicules with no indication of any structure at all resembling that described by Selenka. Further than the above description we are not at present prepared to go. It may be pathological in its origin, or may, on the other hand, be a perfectly normal structure.

DESCRIPTION OF PLATES.

Plate II.

Fig. 1. *Phyllophorus ventripes*, n. sp., lateral view.
,, 2. *Thyone vercoi*, n. sp. Pharynx opened longitudinally, showing masses of processes containing calcareous deposits. *Enlarged.*
,, 3. Two of the processes further enlarged.
,, 4. The "neck" of a process further enlarged to show the character of the contained ossicles.

---

(7) Bronn, Klassen und Ordnungen des Thier-Reiches. Echinodermen, I. Buch., "Die Seewalzen," p. 112.

PLATE III.

Fig. 1. *Thyone vercoi*, n. sp.
    a,b,c,d—Various ossicles from perisome, × 200.
    e,f,g—Ossicles from pharyngeal processes and from tentacles, × 200.
,, 2. *Cucumaria striata*, n. sp.
    a,b,c,d—Ossicles from perisome, × 275.
,, 3. *Thyone nigra*, n. sp.
    a,b,c—Ossicles from perisome, × 250.
    d,e—Ossicles from tube feet, × 250.
,, 4. *Thyone nigra*, calcareous ring. *Enlarged.*
,, 5. *Phyllophorus ventripes*, calcareous ring. *Enlarged.*

PLATE IV.

Thyone vercoi. Diagram of a section of the pharyngeal wall and of a single process dependent therefrom.

a—Spicules as in plate iii., fig. i., *e,f,g*.
b—Endothelium.
c—Lymphocytes.
d—Longitudinal muscle.
e—Connective tissue.
f—Circular muscle.
g—Peritoneum.

THE HAEMATOZOA OF AUSTRALIAN BIRDS.—NO. 3.

By J. Burton Cleland, M.D., Ch.M. (Sydney).

[Read April 8, 1915.]

The present paper is a continuation of the systematic examination for haematozoa of blood slides from Australian birds, of which two previous numbers have already been contributed by Dr. T. Harvey Johnston, in association with the present writer. The present paper deals with the examination of further slides up to the end of 1914. The majority of the birds were obtained in New South Wales, but some came from South Australia, Queensland, and the islands of Bass Straits.

I would here like to express my gratitude to Dr. T. L. Bancroft, of Eidsvold, Queensland, who has so generously forwarded many blood-films for examination, as well as to my former colleague, Dr. T. Harvey Johnston, with whom some of the earlier specimens in this paper were conjointly examined.

The haematozoa found in Australian birds are comprised in the protozoan genera *Halteridium*, *Plasmodium*, *Trypanosoma*, and *Leucocytozoon* (?), whilst *Microfilariae* have also been found.

Our joint and separate researches have now shown the presence of *Halteridia* in birds in all the States of the Commonwealth, except Victoria, from which latter State we have as yet had no opportunity of examining specimens. The genus *Plasmodium* has been found in sparrows in Sydney, and has been recorded from Victoria by Gilruth, Sweet, and Dodd, and from Queensland by Breinl. We have met with trypanosomes in Queensland birds, and in two instances in birds from New South Wales, one of these cases being from Grafton and the other from near Sydney. Trypanosomes seem rarer in birds in New South Wales than in those from Queensland. *Leucocytozoon* (?), which we have thought may possibly be an intracorpuscular stage of a trypanosome, has been found chiefly in

---

(1) "The Haematozoa of Australian Birds, No. 1," by J. Burton Cleland, M.D., Ch.M., and T. Harvey Johnston, M.A., D.Sc., appeared in Trans. Roy. Soc., S.A., vol. xxxiv., 1910. "The Haematozoa of Australian Birds, No. 2," by the same authors, appeared in the Jour. and Proc. Roy. Soc., N.S.W., vol. xlv., 1911.

Queensland birds. In the present paper, however, an instance of infection in a spiny-cheeked honey-eater as far south in New South Wales as Yanco is recorded. We have detected *Microfilariae* in birds from Queensland and New South Wales.

In this paper, as in previous papers, a list of birds, whose bloods have yielded negative results in our hands when microscopically examined, is given.

We have now examined 160 species of Australian birds, comprising 339 individuals, for haematozoa with negative results. In the list of species in this paper giving the negative results I have indicated those species from which we had previously obtained haematozoa. We have now detected the presence of *Halteridia* in 32 species of Australian birds; 11 of these are mentioned in the present paper, the host in six instances being new. We have met with the genus *Plasmodium* in several sparrows captured in the neighbourhood of Sydney. A parasite of the black swan, forwarded to us by Dr. Bancroft, of Queensland, contains a large intracellular parasite, which we have provisionally placed in the genus *Plasmodium*, though possibly it should be referred to *Halteridium*. These parasites are in general oval, but occasionally show a tendency to assume a halter form. No schizonts were detected to enable the matter to be settled. We have found the presence of trypanosomes in eight species, three of which are referred to in the present paper, two of them being new hosts, though in one of these two we had previously found *Leucocytozoa*. *Leucocytozoa* have been detected in ten species, of which four are included here, two being new hosts. In five species trypanosomes and *Leucocytozoa* have both been detected, in three species trypanosomes alone, and in five species *Leucocytozoa* alone.

From these figures it will be seen that trypanosomes and *Leucocytozoa* are often present in the same species of bird, and even in the same individual bird. This fact may be due merely to the coincidence that the one invertebrate host will serve for the transmission of both parasites to the avian host. On the other hand, it may indicate what we have suggested in previous papers—*viz.*, that the *Leucocytozoon* is an intracellular phase of the trypanosome. At present it seems advisable to record the intracellular bodies as separate parasites, though in our previous papers they were included under the heading "Trypanosomes." Parasites of this nature are known from other parts of the world, and are generally considered as in no way related to trypanosomes.

The following list indicates those species harbouring one or both of these blood parasites, and the number of individuals in which they have been found:—

	Trypanosomes.	*Leucocytozoa.*	**Both.**
Podargus strigoides	—	1	—
Microeca fascinaus ...	1	—	—
Pardalotus melanocephalus	1	—	—
Myzomela sanguineolenta	—	3	1
Ptilotis fusca	1	5	5
Ptilotis chrysops ...	1	—	—
Myzantha garrula ...			
Anellobia chrysoptera			
Acanthogenys rufigularis			
Entomyza cyanotis		—	3
Oriolus sagittarius ...		2	1
Sphecotheres maxillaris		2	—
Corcorax melanorhampus		2	—
Total individuals affected	4	20	12
Total species affected ...	3	5	5

Microfilariae have been found in 26 species of birds, of which six are included in the present paper, one host being new.

I. —PLASMODIUM.

(1) *Plasmodium biziurae* (?) from *Chenopsis atrata* (Black Swan). —A large intra-corpuscular parasite of the black swan, for the slide containing which I am indebted to Dr. Bancroft, has the general appearance of a *Plasmodium*. The parasites appear as rounded or irregularly oval bodies, often at one end of the host cell, displacing the nucleus. Sometimes the parasites are oval and lying alongside the host-nucleus, occasionally they are bean-shaped, and in one or two instances they tended to curl round the host-nucleus after the fashion of *Halteridium*. There were no marked halter-forms, however, and their absence, coupled with the displacement of the host-nucleus, suggest that the parasite is a *Plasmodium*, and not a *Halteridium*. No schizonts were detected to set the matter at rest. The parasites showed an alveolar appearance of the protoplasm, some (male forms) staining a paler blue than others (female). Melanin appeared as fine scattered granules (about 20 small grains in one male form), as fine granules grouped at one side in another male form, as scattered coarser granules also in a male form, or as two large coarse masses in the centre in a female form. Some of the infected corpuscles were partly dehaemoglobinized. Even in a small pale spherical form of 7 μ diameter, the nucleus was displaced. One of the largest parasites, which assumed a slight halter form, measured 14 × 5 μ, the host-cell containing it 15·8 × 8·2 μ. Descriptions of other examples of the parasites, which were few in number, are as follow:—

(1) Oval, deep blue, 9 × 5·5 μ, placed alongside the host-nucleus, and displacing it, corpuscle partly dehaemoglobinized.

(2) Placed obliquely at one end of the corpuscle, 8 to 10 μ long, coarse masses of melanin.

(3) Elongated oval, 12 × 5·2 μ, placed alongside the host-nucleus, scattered fine grains of pigment.

(4) Oval, tending to curl round the ends of the host-nucleus, 13·8 μ long.

These parasites are much larger than the *Plasmodium* we have found in sparrows in Sydney. They are also larger than the *Halteridia* we have met with. Gilruth, Sweet, and Dodd (Proc. Roy. Soc., Vic., xxiii., n.s. p. 231) have recorded *P. biziurae* from the musk-duck, *Biziura lobata.* This latter species is 8·5 to 10 × 4·8 to 9·7 μ, displaces the host-nucleus, and causes slight enlargement of the infected cells from 13·5 to 14·2 × 7·8 to 8·5 μ, to 15·6 × 9·7 to 10·6 μ. As the musk-duck inhabits the same localities as the black swan, it seems possible, in spite of slight differences in size and shape, that our parasite (if a true *Plasmodium*, and not a *Halteridium)* is also *P. biziurae*, under which designation it is provisionally placed.

(2) *Plasmodium passeris*, from *Passer domesticus* (House Sparrow).—In the Proceedings of the Linnean Society of New South Wales, in 1909, vol. xxxiv., p. 505, Dr. Johnston and myself have recorded the presence of a malarial parasite in sparrows in Sydney. Another instance of infection has been met with, a few red cells in one of two sparrows obtained in October, 1914, showing spherical forms of about 4·8 μ diameter at one end of the host-cell, displacing its nucleus. There were a few fine scattered grains of pigment. It is of interest to note that so far no indigenous species of birds in the neighbourhood of Sydney has shown an infestation by a *Plasmodium*, whilst this parasite, presumably imported into Australia with its present host, must have existed in Sydney for at least half a century, and probably for longer (no sparrows have been introduced into Australia of recent years). Notwithstanding apparently ample opportunities for transmission to other birds, this seems not to have been achieved, either because the parasite is specific to its passerine host, or because the invertebrate host has opportunities of biting sparrows much more frequently than other birds. An intermediate host like the mosquito, *Culex fatigans*, would fulfil this latter *rôle*, since it confines its activities to the immediate neighbourhood of houses to which few native birds resort.

II.—HALTERIDIUM.

There are several additional infected species to be recorded, as well as further records of species already shown to be infected:—

(1) *Halteridium* of *Catheturus lathami*.—A further specimen obtained by Dr. Bancroft at Eidsvold, Queensland, in December, 1911, has been found infected.

(2) *Halteridium* of *Ninox boobook*.—In our first joint paper we recorded the presence of *Halteridium* in *Ninox boobook* (?) from Queensland. Another blood-slide from this species, forwarded by Dr. Bancroft in September, 1911, from Eidsvold, also showed their presence.

(3) *Halteridium* of *Ninox strenua*.—*Halteridia*, very few in number, were seen in slides made from this bird, and kindly given to us in February, 1913, by Dr. Bancroft from Eidsvold.

(4) *Halteridium* of *Gerygone albigularis*.—Blood-slides were obtained from a specimen of this species shot at Molong in 1913. *Halteridia* of large size were present, occupying the side and both ends of the host-cell, in some instances distinctly but slightly displacing the nucleus. In some instances five-sixths of the available space in the red cell was occupied by the *Halteridium*. Occasionally the side of the host-cell opposite the parasite was reduced to a mere rim of protoplasm. The pigment was coarse.

(5) *Halteridium* of *Dicaeum hirundinaceum* (Swallow Dicaeum).—*Halteridia* were detected in a specimen of *Dicaeum* obtained on the Hawkesbury River, near Sydney, in March, 1912. The parasite occupied the side and both ends of the containing red cell. Pigment was moderately abundant, the individual grains being of medium size. Pale forms were not noticed.

(6) *Halteridium* of *Pardalotus melanocephalus* (Black-headed Pardalote).—Dr. Johnston and I have previously recorded the presence of *Halteridia* in this species. Dr. Bancroft forwarded from Eidsvold in October, 1911, a further film from this bird showing a few *Halteridia*.

(7) *Halteridium* of *Melithreptus validirostris* (Thick-billed Honey-eater).—A blood-film was obtained from this species on Flinders Island, in Bass Straits, at the end of November, 1912. *Halteridia* were present, but scarce. Both pale- and dark-staining forms were noticed. A remarkable feature was the scarcity of pigment, even in adult forms extending from end to end of their host-cells. In these just a few minute grains or none at all were detected. Possibly this is a specific feature.

(8) *Halteridium* of *Myzomela sanguineolenta* (Sanguineous Honey-eater).—We have previously recorded *Halteridia* from this species. Another infected specimen was forwarded by Dr. Bancroft from Eidsvold in October, 1911, infested also with *Microfilariae*, trypanosomes, and *Leucocytozoa*. The *Halteridia* were numerous, with one or a few large grains of

pigment, and surrounded the host-nucleus, leaving only a thin rim of protoplasm externally.

(9) *Halteridium* of *Ptilotis chrysops.*—In a blood-slide made from one of these birds, shot at Milson Island, in the Hawkesbury River, in November, 1914, numerous *Halteridia* and a few trypanosomes were detected. The *Halteridia*, which we have previously recorded from this species, presented no special features, occupying one side and most of both ends of the affected host-cells, and showing coarse grains of pigment, collected into groups, sometimes at one end only, sometimes at both ends, and sometimes in the middle.

(10) *Halteridium* of *Ptilotis penicillata.*—In a specimen of this honey-eater, obtained at Overland Corner, Murray River, South Australia, a few *Halteridia* were detected, some mature, some half-grown. Pigment was present as large granules.

(11) *Halteridium* of *Acanthogenys rufigularis* (Spiny-cheeked Honey-eater).—A few *Halteridia* have been detected in blood-films from one of these birds obtained at Cobar in October, 1911, and in another shot at Merrool, near Yanco, in October, 1912. In the latter case, *Leucocytozoa* were also present.

III. —LEUCOCYTOZOA ("Intra-corpuscular Trypanosomes(?)").

In No. II. of our Haematozoa of Australian Birds, Dr. Johnston and myself have described intra-corpuscular bodies in the blood corpuscles of various Australian birds. We have thought that these might be intra-corpuscular forms of the trypanosomes with which they are often associated, and have referred to them as such, or as *Leucocytozoa.* These rounded parasites seem not uncommon in birds in other parts of the world, and are usually referred to as "*Leucocytozoa,*" a term which it seems preferable to use rather than a more or less committal one, such as "intra-corpuscular trypanosomes." All the specimens we have so far examined from various birds are of spherical form and seem specifically indistinguishable. The following specimens have been examined since our last paper:—

(1) *Leucocytozoon* of *Podargus strigoides.*—In 1913 Dr. Bancroft sent us slides from this *Podargus* from Eidsvold, Queensland. *Microfilariae* were present, and in addition moderately numerous male and female forms of a *Leucocytozoon*, measuring 8·5 to 10·5 μ in diameter. We have not previously recorded *Leucocytozoon* from this species of bird.

(2) *Leucocytozoon* of *Myzomela sanguineolenta.*—An additional bird, obtained by Dr. Bancroft in October, 1911, has been found infected with *Leucocytozoon*, as well as with trypanosomes, *Microfilariae*, and *Halteridia.*

(3) *Leucocytozoon* of *Ptilotis fusca.*—We have previously recorded "free and intra-corpuscular trypanosomes" from Queensland birds of this species. In a bird shot near Grafton, New South Wales, in April, 1912, both trypanosomes and *Leucocytozoa* were detected. This was the first New South Wales bird in which either of these parasites had been found.

(4) *Leucocytozoon* of *Acanthogenys rufigularis* (Spiny-cheeked Honey-eater).—In a bird shot at Merrool, near Yanco, in October, 1912, these *Leucocytozoa* were detected. In young forms the host-nucleus was bayed by the parasite, in older forms it lay as a cap or a band on the parasite. The colouration of the host-nucleus by Giemsa's stain in infected cells was more purplish than in the case of non-parasitized cells, the tint being the same as is obtained when a red corpuscle has been partly injured in making a film. In some of the largest forms the protoplasm of the parasites contained a few dark granules. The infection of this bird is of considerable interest. The locality is in the south of New South Wales, not very far from the Victorian border, the only other bird in this State that we have so far found infested with the *Leucocytozoon* having come from the opposite, north-east, corner—*viz.*, Grafton. The bird is also more of an interior, dry-loving species, whereas Grafton is sub-tropical.

IV.—TRYPANOSOMES.

One new infected Australian species of bird has been met with since our last report. The species of trypanosome is probably the same as that found in other Australian species and called by us *Trypanosoma anellobiae*:—

(1) Trypanosome of *Myzomela sanguineolenta* (Sanguineous Honey-eater).—We have previously recorded the presence of *Leucocytozoa* ("Intra-corpuscular Trypanosomes") in this species from Eidsvold, Queensland. In October, 1911, Dr. Bancroft kindly forwarded another specimen from the same locality, in which a few trypanosomes, as well as *Leucocytozoa*, *Halteridia*, and *Microfilariae* were detected. The posterior end of the only uninjured trypanosome seen was finely attenuated with the micro-nucleus 12 μ from the extremity. The micro-nucleus, 2·5 μ long, was 11 μ anteriorly, the body at this level being 5 μ wide. (From the macro-nucleus the parasite gradually tapered anteriorly to end at 26 μ. There was a broad, undulating membrane. This is another instance of the association of *Leucocytozoa* and trypanosomes.

(2) Trypanosome of *Ptilotis fusca.*—We have previously recorded *Leucocytozoon* and trypanosomes from Queensland specimens of this bird. The bird shot at Grafton in April, 1912, referred to under *Leucocytozoon*, also contained trypanosomes.

(3) Trypanosome of *Ptilotis chrysops*.—In a bird shot at Milson Island, Hawkesbury River, in November, 1914, numerous *Halteridia* were present, and a single well-preserved trypanosome was seen, as well as several degenerated forms without flagella. This parasite was dark blue, with a pointed posterior end with the micro-nucleus close to the tip. The body was about 17 μ long, apart from the curves, which would make it about 20 μ, the free flagellum was 12 μ long, and the greatest breadth 3·5 μ. A search for *Leucocytozoa* did not reveal any.

V.—MICROFILARIAE.

(1 and 2) *Microfilariae* of *Plotus novae-hollandiae* and *Phalacrocorax sulcirostris*.—In October, 1911, we received from Dr. Bancroft at Eidsvold, Queensland, blood smears from these two species of birds. My former colleague, Dr. T. Harvey Johnston, was with Dr. Bancroft when the birds were shot, and describes the two species as commingling together. Dr. Johnston has recorded our findings in a paper read before the Royal Society of Queensland in June, 1912. An examination of these slides shows the presence of sheathed *Microfilariae* specifically different from the unsheathed forms previously recorded by us from *Phalacrocorax melanoleucus* in our second paper. The *Microfilariae* showed a well-marked sheath, either as an empty envelope extending beyond one end of the worm, or as a long empty tube left trailing behind as the *Microfilariae* "wriggled" forwards in the drying blood smear. The anterior ends of the bodies were rounded, and the posterior ends rapidly attenuated to a sharp point, this feature being somewhat obscured by the sheath. There was indistinct cross-striation. The anterior end showed a clear area from a few up to 7 μ in length, being sometimes mostly occupied by isolated nuclear masses, at others possessing only a small mass. The following are the measurements, in micromillimetres, of several individuals from both species:·

	From *P. sulcirostris.*	From *Plotus.*					
Anterior clear area ...	Nuclei occupy most of the specimen	7	5	7		4	
Anterior end to 1st “spot”	43	40	35	43	36	38	34
1st “spot” (incomplete) ...	2	2	2	2	2		
1st “spot” to 2nd “spot”	15·5	15·5	14	17	17	17	
2nd “spot” (V-shaped”) ..	3·5	3·5	3·5	3·5			
2nd “spot” to end	95	104	95	112·5			
Total length	159	165	154·5	185	181	173	
Breadth		5	5·5	5·3		7	7

(3) *Microfilaria* of *Podargus strigoides*.—In our second paper we have referred to the *Microfilaria* of this species of frogmouth. In a further specimen, also forwarded to us from Eidsvold, Queensland, by Dr. Bancroft, these parasites were very numerous, and *Leucocytozoa* were also present. The *Microfilariae* showed fine transverse striations, and the tail tapered to a sharp point, whilst the anterior end was blunt. In our previous paper we gave the total length as 90 to 100 μ, but an examination of this bird shows they may reach nearly 140 μ. The following are the measurements, in micromillimetres, of several individuals:—Total lengths, 98, 100·3, 105·4, 131·5, 137·4, 138; anterior "clear" area, 3·4 to 5·5; anterior end to first "spot," 29·5, 27·5, 29·5, 31, 38, 39·5; length of first "spot," 2 to 3·4; from first "spot" to second "spot," 26, 24, 26, 24, 38, 29·5; length of second "spot," 2 to 5 μ, in one instance, perhaps due to injury, 7 μ; from second "spot" to posterior end, 38, 43·5, 43, 52 (with a doubtful third "spot" in the exact middle of this area), 51, 44 (with a third "spot" 27 μ from the anterior end of this area). The greatest diameter was 3·5 to 4 μ. Microscopically, though the measurements vary in individuals and seem to group themselves about two means, there is nothing to suggest that more than one species is present.

(4) *Microfilaria* of *Eurystomus pacificus*.—Another specimen of the roller infested with *Microfilariae* was forwarded by Dr. Bancroft from Queensland in January, 1912.

(5) *Microfilaria* of *Collyriocichla harmonica*.—*Microfilariae* were detected in the blood of a specimen of the harmonious thrush obtained at the Hawkesbury River, New South Wales, in June, 1912. Their features may be summarized as follows:—Anterior end, blunt; breadth throughout more or less uniform, though the posterior third diminishes slightly; posterior end also blunt; fine cross-striations; a very short "clear" area at the anterior end. Total length, 96 to 103 μ; anterior "clear" area, sometimes 2·5 μ long; first "spot," 20·5 μ from anterior end in three specimens, and 26 μ in a fourth; a V-shaped "break" at about 36 to 38 μ from the anterior end; a third "spot" at 57 to 62 μ from the anterior end; greatest breadth, 3·5 μ.

(6) *Microfilaria* of *Myzomela sanguineolenta*.—Another specimen of the sanguineous honey-eater infested with the exceedingly long *Microfilaria* mentioned in our second paper, and also harbouring *Halteridia*, *Leucocytozoa*, and trypanosomes, was kindly forwarded in October, 1911, from Eidsvold by Dr. Bancroft.

The following are the tabulated lists of the material examined for the purpose of this paper. The numbers (M. 216, etc.) refer to Mathews' "Hand-list of the Birds of Australasia," published in *The Emu* (vol. vii., 1907-8).

I.—LIST OF BIRDS IN WHICH *Plasmodia* WERE FOUND.

Chenopsis atrata (M. 216), Eidsvold, Queensland, 1914 (1 with *Plasmodium*, 1 *nil*).

Passer domesticus (introduced), Sydney, October, 1914 (1 with *Plasmodium*, 1 *nil*).

2.—LIST OF BIRDS IN WHICH *Halteridia* WERE FOUND.

Catheturus lathami (M. 7), Eidsvold, Queensland, December, 1911.

Ninox boobook (M. 283), Eidsvold, September, 1911; Eidsvold, January, 1913 (*nil*); Mannum, South Australia, November, 1913 (*nil*).

Ninox strenua (M. 291), Eidsvold, February, 1913.

Gerygone albigularis (M. 451), Molong, October, 1913.

Dicaeum hirundinaceum (M. 722), Hawkesbury River, March, 1912.

Pardalotus melanocephalus (M. 729), Eidsvold, October, 1911.

Melithreptus validirostris (M. 740), Flinders Island, Bass Straits, November, 1912.

Myzomela sanguineolenta (M. 746), Eidsvold, October, 1911 (with *Microfilariae*, trypanosomes, and *Leucocytozoa*).

Ptilotis chrysops (M. 775), Hawkesbury River, November, 1914 (with trypanosomes).

Ptilotis penicillata (M. 791), Overland Corner, River Murray, South Australia, December, 1913 (1 with *Halteridia*, 1 *nil*).

Acanthogenys rufigularis (M. 812), Cobar, September, 1911; Yanco, October, 1912 (with *Leucocytozoa*).

3.—LIST OF BIRDS IN WHICH *Leucocytozoa* WERE FOUND.

Podargus strigoides (M. 376), Eidsvold, 1913 (with *Microfilariae*); Hawkesbury River (*nil*).

Myzomela sanguineolenta (M. 746), Eidsvold, October, 1911 (with trypanosomes, *Halteridia*, and *Microfilariae*).

Ptilotis fusca (M. 769), Grafton, April, 1912 (with trypanosomes); Wellington, New South Wales, October, 1914 (*nil*).

Acanthogenys rufigularis (M. 812), Cobar, September, 1911 (*Halteridia* only); Yanco, October, 1912 (with *Halteridia* also).

4.—LIST OF BIRDS IN WHICH TRYPANOSOMES WERE FOUND.

Myzomela sanguineolenta (M. 746), Eidsvold, Queensland, October, 1911 (with *Leucocytozoa*, *Halteridia*, and *Microfilariae*).

Ptilotis fusca (M. 769), Grafton, April, 1912 (with *Leucocytozoa*); Wellington, New South Wales, October, 1914 (*nil*).

Ptilotis chrysops (M. 775), Hawkesbury River, November, 1914 (with *Halteridia*).

5.—LIST OF BIRDS IN WHICH *Microfilariae* WERE FOUND.

Phalacrocorax sulcirostris (M. 238), Eidsvold, October, 1911.

Plotus novae-hollandiae (M. 242), Queensland, October, 1911.

Podargus strigoides (M. 376), Eidsvold, 1913 (with *Leucocytozoa*); Hawkesbury River (*nil*).

Eurystomus pacificus (M. 381), Eidsvold, January, 1912.

Collyriocichla harmonica (M. 636), Hawkesbury River, June, 1912; Eidsvold, April, 1913, (*nil*).

Myzomela sanguineolenta (M. 746), Eidsvold, October, 1911 (with *Halteridia*, trypanosomes, and *Leucocytozoa*).

6.—LIST OF BIRDS IN WHICH HAEMATOZOA WERE NOT FOUND.

(The figure (1) placed before a bird's name indicates that we have on previous occasions found *Halteridia* in the species, (2) a trypanosome, (3) *Leucocytozoon*, and (4) a *Microfilaria*).

Dromaeus novae-hollandiae (M 1), Eidsvold, Queensland, September, 1913.

Geopelia humeralis (M. 33), Gular, October, 1911.

Geopelia placida (M. 34), Gular, October, 1911.

Chalcophaps chrysochlora (M. 36), Eidsvold, September, 1913.

Phaps chalcoptera (M. 37), Eidsvold, Queensland, April, 1913.

Podiceps novae-hollandiae (M. 65), Hawkesbury River, October, 1911.

Pelagodroma marina (M. 75), Flinders Island, Bass Straits, November, 1912.

Puffinus tenuirostris (M. 84), Flinders Island, November, 1912.

Diomedea exulans (M. 109), South of Tasmania, 1914.

Haematopus fuliginosus (M. 145), Flinders Island, November, 1912.

Aegialitis melanops (M. 158), Eidsvold, September, 1911.

Heteropygia aurita (M. 181), Gular, October, 1911 (2); Flinders Island, Bass Straits, November, 1912 (2).

Notophoyx novae-hollandiae (M. 204), Eidsvold, October, 1911.

Notophoyx pacifica (M. 205), Gular, October, 1911.

Phalacrocorax carbo (M. 237), Queensland, October, 1911 (2).

Phalacrocorax, sp., Hawkesbury River.

Uroaëtus audax (M. 262), Eidsvold, February, 1913.

Falco melanotus, Flinders Island, November, 1912.

Hieracidea berigora (M. 278), Eidsvold, January, 1912.

Hawk sp., Eidsvold, January, 1912 (2).

Large owl, Eidsvold, 1913.

Glossopsittacus pusillus (M. 309), Hawkesbury River, July, 1912.

Cacatua galerita (M. 320), Eidsvold, September, 1911 (2).

Polytelis barrabandi (M. 328), Cobar, September, 1911.

Aprosmictus cyanopygius (M. 332), Eidsvold, January, 1912.

Platycercus eximius (M. 343), Eidsvold, January, 1912.

Barnardius barnardi (M. 349), Willbriggie, October, 1912.

Psephotus haematorrhous (M. 354), Dubbo, September, 1911.

Psephotus haematonotus (M. 361), Cowra, September, 1911.

Halcyon sordidus (M. 394), Queensland, October, 1911.

Eurostopus albigularis (M. 397), Eidsvold, January, 1912.

Scythrops novae-hollandiae (M. 416), Eidsvold, January, 1912.

Chelidon ariel (M. 432), Gular, October, 1911; Morgan, South Australia, November, 1913 (2).

(2) *Microeca fascinans* (M. 433), Morgan, November, 1913.

Petroeca rosea (M. 443), Hawkesbury River, June, 1912.

Smicrornis brevirostris (M. 449), Cobar, September, 1911; Hawkesbury River, June, 1912.

Myiagra rubecula (M. 488), Hawkesbury River, 1912.

Coracina robusta (M. 504), Queensland, October, 1911.

Coracina parvirostris (M. 505), Flinders Island, November, 1912.

Cinclosoma castanonotum (M. 516), Alawoona, South Australia, December, 1913.

Drymaoedus brunneopygius (M. 521), Alawoona, December, 1913.

Pomatorhinus ruficeps (M. 531), Cobar, September, 1911 (young bird).

Ephthianura tricolor (M. 547), Molong, October, 1913.

Origma rubricata (M. 557), Sydney, May, 1912.

Chthonicola sagittata (M. 558), The Oaks, June, 1914.

Acanthiza nana (M. 559), Sydney, November, 1911.

Acanthiza diemenensis (M. 565), Flinders Island, November, 1912.

Acanthiza pyrrhopygia (M. 568), Monarto South, South Australia, July, 1914: Willbriggie, New South Wales, October, 1912.

Acanthiza uropygialis (M. 573), Dubbo, September, 1911 (2).

Acanthiza reguloides (M. 575), Dubbo, September, 1911.

Sericornis flindersi, Flinders Island, November, 1912.

Malurus cyaneus (M. 592), Flinders Island, November, 1912.

Malurus melanotus (M. 595), Overland Corner, South Australia, December, 1913.

Artamus superciliosus (M. 625), Cowra, September, 1911.

Artamus tenebrosus (M. 634), Hawkesbury River, October, 1912.

Collyriocichla rectirostris (M. 637), Flinders Island, November, 1912.

(1) *Grallina picata* (M. 646), Cowra, September, 1911.

Pachycephala rufiventris (M. 674), Yanco, October, 1912; Eidsvold, August, 1913.

(1) *Aphelocephala leucopsis* (M. 689), Narrabri, February, 1912; Gular, October, 1911.

(1) *Zosterops coerulescens* (M. 712), Ourimbah, November, 1911; Flinders Island, November, 1912.

Pardalotus ornatus (M. 723), Gular, October, 1911; Alawoona, South Australia, December, 1913.

Pardalotus affinis (M. 725), Flinders Island, November, 1912.

Pardalotus punctatus (M. 726), Hawkesbury River, March, 1912.

Pardalotus xanthopygius (M. 727), Mannum, South Australia, November, 1913.

(1) *Melithreptus atricapillus* (M. 733), Sydney, November, 1911; Hawkesbury River, June, 1912.

Melithreptus brevirostris (M. 741), Hawkesbury River, June, 1912; Mannum, South Australia, November, 1913.

Melithreptus affinis (M. 744), Flinders Island, November, 1912.

Ptilotis flavicollis (M. 776), Flinders Island, November, 1912 (2).

Ptilotis leucotis (M. 778), Hawkesbury River, June, 1912.

Ptilotis melanops (M. 781), Hawkesbury River, June, 1912.

Ptilotis ornata (M. 786), Murray River, South Australia, November, 1913; Alawoona, South Australia, December, 1913; Monarto South, South Australia, July, 1914.

Meliornis sericea (M. 801), Sydney.

(1, 3) *Myzantha garrula* (M. 804), Hawkesbury River, May, 1912.

(1, 2, 3, 4) *Oriolus sagittarius* (M. 850), Eidsvold, June, 1911.

Chibia bracteata (M. 854), Eidsvold, February, 1913.

(4) *Corvus coronoides* (M. 872), Hawkesbury River, September, 1911.

Strepera, Eidsvold, September, 1913.

(4) *Struthidea cinerea* (M. 882), Eidsvold, April, 1913 (2)

(3, 4) *Corcorax melanorhamphus* (M. 883), Hawkesbury River, May, 1912.

INTRODUCED BIRD.

Turtur suratensis, Indian Dove, Sydney, December, 1911.

A FURTHER COMPARISON OF THE SIZES OF THE RED CELLS OF SOME AUSTRALIAN VERTEBRATES.

By J. Burton Cleland, M.D., Ch.M. (Sydney).

[Read April 8, 1915.]

To *The Emu* (vol. xi., 1912, p. 188) Dr. T. Harvey Johnston and myself contributed a paper giving the measurements of the red cells of a number of Australian vertebrates that had been examined by us.

During the visit of the British Association for the Advancement of Science to Sydney in August, 1914, I contributed a further paper, giving a summary of the results of these measurements, and of others conducted since the first paper was published. These further results, which are included in the present paper, support the contention made in the first conjoint paper, that the sizes of the red corpuscles vary considerably, not only in the classes of vertebrates, but amongst the orders, and even in some cases amongst genera, and that a comparison of the sizes one with another may be of some service in showing the relative relationships of families, and sometimes even of genera, to each other.

The measurements have all been taken from blood-slides stained by the Giemsa dry method, wet fixation and staining methods being impracticable in the field. Experience seems to show clearly that the measurements thus obtained in good films are reliable.

The red cells of the mammals call for no special comment.

Amongst the *Aves*, the emu has the largest red cells that we have so far met with, ranging from 14 to 16·5 μ by 8·5 to 9·5 μ. Then follow the *Procellariiformes*, *Ardeiformes*, *Pelecaniformes*, and the *Anseriformes*. These have measurements approximating to 14 by 8·5 μ. *Coraciiformes* have apparently slightly smaller cells, followed by the hawks and parrots. In the pigeons and cuckoos the size approximates more to 12 to 13 μ by 7 to 8 μ. The highest order of birds, the *Passeriformes*, have red cells ranging from 10 to 12 μ. It may be noted that in the families *Dicruridae* and *Corvidae* the size is a little greater than in the other families of this order.

Amongst the reptiles, the size is usually from 15 to 20 μ by 9 to 12 μ, occasionally in some skinks as small as 14 or even 12 μ in length. The frogs show red cells usually of from 17 to 20 μ in length. Amongst the fish, the *Dipnoi*, as exhibited by *Ceratodus forsteri*, show enormous red cells, varying from 36 to 41·5 μ by 20·7 μ.

Amongst the *Teleostomi*, the red cells are much smaller, being sometimes nearly spherical, some of the latter being 7 to 8 μ in diameter and in other species 12 μ. The usual size, however, of the red cells of these fishes seems to be about 10·4 to 12 by 8 to 9 μ.

These figures seem to indicate that with later specialization has eventually come, both in fishes and birds, a diminution in size of the red cells. The cumbersome corpuscles of *Ceratodus* have doubtless played a part in the gradual extinction of the Dipnoan fishes. The relationships of the various classes to each other is clearly shown in the size of the red cells. The red cells of the Elasmobranchs approximate more in size to those of Batrachians and Reptiles than do the red corpuscles of Teleostean fishes, which latter do not link on to any of the higher vertebrate stems. The enormous red cells of the *Dipnoi* approach those of such Amphibians of the order *Urodela* as *Proteus* (said to be 58 × 35 μ) and *Amphiuma* (given as 77 × 46 μ). In the frogs and reptiles the size has diminished somewhat, whilst in the birds, the "oldest" forms show distinctly a tendency to larger cells than the more specialised ones, the smallest being met with in some families of Passerine birds. The results of the measurements of the red cells of a large number of Australian birds seem to indicate that such may be of some help in ascertaining the broader relationships of some aberrant species.

TABLE OF THE SIZES OF THE RED CORPUSCLES OF VARIOUS AUSTRALIAN VERTEBRATES.

(The sizes given are in micromillimetres (1/1000th of a millimetre). The first figures given indicate the length and breadth of the cells, the second the same dimensions of the nucleus, if present.)

MAMMALIA.

Order CHIROPTERA.

Pteropus gouldi (Gould's flying fox)	5·2 to 5·7
Chalinolobus gouldi (Gould's bat) [?]	5·5 to 6·5

Subclass METATHERIA.

Suborder DIPROTODONTIA.

Macropus ualabatus (black-tailed wallaby)	8

Subclass PROTOTHERIA.

Echidna aculeata	6·6 to 7 6·8

AVES.

Order CASUARIIFORMES.

Dromiceius novae-hollandiae (emu)	15·6 to 16·4×8·7 to 9·5	4·4 to 5·2×2
	15·5×8·5 to 8·8	5·2×3·5
	14 to 15·5×8·5 to 9·3	6·2 to 7×2·5
	14 to 16·5×8·5	6·5×2·5

Order COLUMBIFORMES.

Chrysauchoena humeralis (barred-shouldered dove)	12·5×7	5·5×1·8
Chalcophaps chrysochlora (green pigeon)	12 to 12·2×6·9	5·2×2
Phaps chalcoptera (bronze-winged pigeon)	12·2×7	5·2 to 6·8×2

Order PROCELLARIIFORMES.

Neonectris tenuirostris (mutton bird)	13·8×7·8 to 8	6×2
Diomedea exulans (wandering albatross)	14×8·5	5·2×2·5

Order CHARADRIIFORMES.

Limnocinclus acuminatus (sharp-tailed stint)	12·2 to 12·4×7·2	5·2×2

Order ARDEIFORMES.

Myola pacifica (? Notophoyx novae-hollandiae) (heron)	14×8	6·5×1·8

Order ANSERIFORMES.

Chenopsis atrata (black swan)	13·9×7·2	5·5×2

Order PELECANIFORMES.

Phalacrocorax, sp. (cormorant)	14 to 15·8×8·7 to 9	7×2·5

Order ACCIPITRIFORMES.

Uroaetus audax (wedge-tailed eagle)	12·5 to 13·5×8·5	5·2×2
Falco longipennis (little falcon)	13 to 13·85×7 to 8·5	6×2·5
Hawk, Eidsvold, Queensland	12·2 to 12·8×7 to 7·6	5·2×2 to 2·5
	12·2 to 12·8×7 to 7·6	5·2×2 to 2·5
Hieracoglaux strenua (powerful owl)	10·2 to 12×7·2 to 8	4×2
Large Owl	13·8 to 15·5×7·8 to 8·6	6 to 7×2

Order PSITTACIFORMES.

Glossopsitta	12×7	5·2×2
Alisterus cyanopygius (king parrot)	12 to 12·4×7·2	5×2
Barnardius barnardi (mallee parrot)	13·9×7·5 to 8·5	5·5×2·5

Order CORACIIFORMES.

Eurostopodus argus (spotted nightjar)	13·8 to 14×7·8 to 8·5	5·5×2

Order Coccyges.

Cacomantis rubricatus (fan-tailed cuckoo)	12·1 to 12·4 × 7·2 to 8	5·2 × 2
Scythrops novae-hollandiae (channel bill)	12·2 to 13·8 × 7	5·2 × 2·5

Order Passeriformes.

Family Muscicapidae.

Microeca fascinans (brown flycatcher)	10·4 to 11·2 × 6·5 to 6·8	5·2 × 2
Belchera rosea (rose-breasted robin)	10·5 to 11·8 × 5·5 to 6·5	5·2 × 2
Smicrornis brevirostris (short-billed tree-tit)	10·4 to 11·2 × 6	5 × 1·7
Lewinornis rufiventris (rufous-breasted thick head)	10 to 10·5 × 5·2 to 5·8	4·8 × 2

Family Timeliidae.

Cinclosoma castanotum (chestnut-backed ground bird)	10·8 to 11·8 × 6 to 6·8	5·2 × 2
Drymodes brunneopygia (scrub robin)	10·5 to 11·2 × 6·8	5·2 × 2

Family Turdidae.

Parephthianura tricolor (tri-coloured chat)	8·7 to 10·5 × 6·2 to 6·7	5·2 × 2

Family Sylviidae.

Origma solitaria (rock warbler)	11·8 × 6·9	5·2 × 2 to 2·5
Acanthiza pusilla (brown-rumped tit)	10·5 × 6·5 to 7	5·2 × 1·8
Acanthiza uropygialis (chestnut-rumped tit)	10·5 to 11·5 × 6·7	5·2 × 1·8
Malurus cyaneus (blue wren)	10·4 to 11 × 6·8	5·2 × 2
Malurus melanotus (black-backed wren)	9·5 to 10·3 × 5·8	4·8 × 2

Family Prionopidae.

Colluricincla harmonica (grey shrike-thrush)	11·2 to 12 × 6·7	5·2 × 2

Family Paridae.

Aphelocephala leucopsis (whiteface)	11·2 to 12 × 5·2 to 5·5	5·2 × 2

Family Dicaeidae.

Pardalotus punctatus (spotted pardalote)	10·4 to 10·8 × 6·2 to 6·9	4·5 to 5 × 2

Family Meliphagidae.

Melithreptus atricapillus (brown-headed honey-eater)	10·5 to 11·2 × 5·8 to 6·8	5·2 × 2
Melithreptus affinis (black-headed honey-eater)	10·4 to 12 × 5·5	5·2 × 2
Nesoptilotis flavicollis (yellow-throated honey-eater)	10·5 to 11 × 6·5	4·3 × 2
	10·4 to 11 × 6	5·2 × 2

Meliornis niger (white-cheeked honey-eater)	10·4 to 10·8 × 6·2 to 7	5·2 × 2
Myzantha melanocephola (black-headed minah)	10·4 to 11·3 × 5·5 to 6·5	5·2 × 2

Family Fringillidae.

Passer domesticus (house sparrow)	10·4 to 11 × 5·2 to 7	

Family Dicruridae.

Dicruropsis bracteatus (spangled drongo)	12 to 12·25 × 7	5·25 × 2·25

Family Corvidae.

Struthidea cinerea (grey jumper)	12·2 × 7	5·2 × 2
	12·1 × 7	5·2 × 2

REPTILIA.

Order Ophidia.

Family Colubrinae.

Pseudechis australis (?)	17·3 to 19 × 10·4	7 × 3·5
Denisonia olivacea	15·6 to 17·3 × 12·2	6·7 × 3·8
Small Snake, Eidsvold	19 to 20·75 × 11·4	7 × 2

Order Chelonia.

Emydura krefftii (Krefft's tortoise)	17·3 × 11·8 to 13·8	3·5 (spher.)
Elseya dentata (northern tortoise)	17·3 to 20·5 × 10·4 to 12	6·8 × 4·2

Order Lacertilia.

Family Geckonidae.

Gehyra variegata	15·8 to 19·8 × 11·25 to 12	7 × 3·5

Family Agamidae.

Physignathus lesueurii (eastern water dragon)	15·7 to 19 × 9 to 10·3	5 to 7 × 3·5

Family Varanidae.

Varanus punctatus, var. *orientalis*	15·5 to 17·5 × 9·5 to 12	4·3 to 5·3 × 3·5 t

Family Scincidae.

Trachysaurus rugosus (stump-tailed lizard)	17 to 19 × 10·4	6·8 × 3·5
Tiliqua scincoides (blue-tongued lizard)	17·5 to 20·75 × 12·25 to 13·8	7 × 3·5
	15·6 to 17·3 × 10·5	7 × 3·8
Tiliqua nigrolutea	16·5 to 17 × 10·4	7 × 3·5
	17·3 to 19 × 8·5 to 10·4	6·2 to 7 × 3·5
Lygosoma (Liolepisma) entrecasteauxii	14 to 15·5 × 8·75	7 × 2·5
	14·7 to 15·5 × 8·5	5·2 × 3·5
Lygosoma (Liolepisma) trilineatum	14 to 15·5 × 8·5	5·2 to 6 × 2·5 to
Ablepharus, sp.	12 to 13·8 × 7·2	5·2 to 7 × 3
Skink, Sydney, April, 1913	14 to 15·5 × 8·6 to 9·4	5·2 × 2 to 2·5
Skink, Sydney, January, 1914	15·5 to 16·5 × 8·5 to 8·8	5·2 × 3·4

AMPHIBIA.

Limnodynastes tasmaniensis (?)	15·6 to 19·7 × 10·4 to 12	5·5 to 7 × 3·5 to
Limnodynastes dorsalis	19 to 20·75 × 12 to 12·5	5·2 × 3·5
	17·3 to 19·2 × 12·2 to 13·8	5 × 3·5
Limnodynastes peronii	17·3 to 20·7 × 10·3 to 12 (sometimes smaller)	5·5 to 7 × 3·6
Phractops australis	19·8 to 20·5 × 12	7 × 3·5
Hyla coerulea	19 to 20·7 × 13·75	5·2 × 3·5
	19 to 20·7 × 13·75	5·2 to 8·5 × 3·5
Hyla ewingii	19 to 22·5 × 13·8	5·2 × 3·5
Hyla aurea	17 to 20·75 × 13·8 to 15·5	7 × 3·5

FISH.

Dipnoi.

Ceratodus forsteri	36 to 41·5 × 20·7	12 to 13·8 × 7

Teleostomi.

Anguilla reinhardtii (eel)	10·4 to 12 × 9·5	5·2 × 3
	10·4 to 12 × 8 to 8·5	5 × 2
Copidoglanis tandanus (cat-fish)	13·5 to 13·8 × 10·3	5·5 × 4
Konosirus erebi (bony bream)	10·4 × 7	3·5 × 2·2
Trachystoma petardi (fresh-water mullet)	8·8 × 5·5	3·6 × 2
	10·4 × 7	3·4 × 2
Mionurus gillii (Krefft's perchlet)	12 (nearly spherical)	5
Notesthes robusta (bullrout)	10·4 × 8·2	3·5 × 2·8
	10·4 × 8·2	3·5 × 2·8
	10·4 × 7 to 8·5	2·5 (spher.)
	10·4 × 8·5	3 (spher.)
Therapion unicolor	7 to 7·7 (nearly spherical)	2 to 3 (spher.)
Therapion percoides (grunter)	7·8 to 8·6 × 6	3·5 × 2·6

CIRCUM-ELONGATION OBSERVATIONS FOR AZIMUTH.

By R. W. Chapman, M.A., B.C.E.

[Read April 8, 1915.]

On account of its convenience and comparative simplicity, the observation of a circumpolar star at elongation is, amongst surveyors, the favourite star observation for the determination of a true azimuth. The great disadvantage of the method is that only one observation can be made with the star actually at elongation, and there is thus no opportunity to eliminate instrumental errors in the same way as may be done, when a series of observations of the same star are made, by taking half the readings with the instrument reversed. As a rule the motion of the star in azimuth is so slow, when near to elongation, that with an ordinary transit theodolite two observations can be made and treated as though the star were actually at elongation without introducing an error sufficient to be measured by the instrument. But a much higher degree of accuracy is possible with the method if a series of half a dozen observations are made on each side of elongation, and the object of the present paper is to discuss the convenient reduction of such a series of observations. For the reduction of a similar set of observations made upon a *close* circumpolar star there is a well-known method that is particularly applicable to the Pole star of the Northern Hemisphere. Unfortunately in the Southern Hemisphere our close circumpolar stars are very faint and not easy to work with. σ Octantis has a polar distance between 46′ and 47′, but its magnitude is 5½, so that it is not readily picked out by the surveyor. The bright southern stars that are most convenient for the determination have commonly a polar distance of about 30°, and to these the formula for close circumpolar stars cannot always be applied without introducing appreciable error.

Two methods are possible for a series of observations made before and after elongation. We may read the verniers of the horizontal circle and note the time at each observation, or we may read the horizontal circle and also the altitude of the star at each observation. The former method is preferable, provided that the surveyor has the correct local time, as errors due to a defective knowledge of atmospheric refraction are not then introduced. The latter method, however, involves no knowledge of the time, and is much more convenient when the observations have to be carried out single-handed. In both cases the azimuth of the star at each observation is corrected by the appropriate formula to give the azimuth of the star at elongation, so that practically we obtain a series of observations at elongation instead of only one.

NOTATION.

The following abbreviations will be used throughout:—

z denotes the zenith distance of the star in any position.
p ,, ,, polar distance of the star.
A ,, ,, horizontal angle between star and pole.
l ,, ,, latitude of place of observation.
c ,, ,, co-latitude of place of observation.
h ,, ,, hour angle of the star in angular measure.
t ,, ,, value of hour angle expressed in sidereal time.

z_0, A_0, h_0, and t_0 denote the values of z, A, h, and t respectively when the star is at elongation.

FIRST METHOD, HORIZONTAL ANGLE AND TIME BEING NOTED AT EACH OBSERVATION.

In the spherical triangle having the star, the celestial pole, and the zenith as its angular points, we have the following fundamental relations:—

$$\cos A \sin z = \cos p \sin c - \cos c \sin p \cos h \quad \ldots \quad (1)$$

$$\sin A \sin z = \sin p \sin h \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad (2)$$

and from the corresponding right-angled triangle when the star is at elongation

$$\sin A_0 = \frac{\sin p}{\sin c} = \frac{\cos p \cos h_0}{\cos c} \quad \ldots \quad \ldots \quad (3)$$

$$\cos A_0 = \cos p \sin h_0 \quad \ldots \quad \ldots \quad \ldots \quad \ldots \quad (4)$$

$(1) \times (3) - (2) \times (4)$ gives

$$\sin z \sin (A_0 - A) = \cos p \sin p \; 2 \sin^2 \tfrac{1}{2} (h_0 - h) \quad (5)$$

This is an exact equation, but is unsuitable as it stands for use in reduction of observations.

Putting $\dfrac{\sin p}{\sin z} = \dfrac{\sin A}{\sin h}$, (5) may be written

$$\frac{\sin (A_0 - A)}{\sin A} = \cos p \, \frac{2 \sin^2 \frac{1}{2} (h_0 - h)}{\sin h}$$

or, writing $y = \cos p \, \dfrac{2 \sin^2 \frac{1}{2} (h_0 - h)}{\sin h}$

$$\sin A_0 \cot A - \cos A_0 = y$$

A_0 is constant, and therefore A may be regarded as a function of y.

Differentiating, we have

$$-\sin A_0 \frac{1}{\sin^2 A} \frac{dA}{dy} = 1$$

$$\text{and} -\sin A_0 \frac{d^2 A}{dy^2} = 2 \sin A \cos A \frac{dA}{dy}$$

Therefore, when $y = o$

$$\frac{dA}{dy} = -\sin A_0 \text{ and } \frac{d^2 A}{dy^2} = \sin 2 A_0$$

and consequently, by Taylor's Theorem

$$A = A_0 - \sin A_0 \cdot \frac{\cos p \, 2 \sin^2 \frac{1}{2} (h_0 - h)}{\sin h \sin 1''} + \sin 2 A_0 \frac{\cos^2 p \, 2 \sin^4 \frac{1}{2} (h_0 - h)}{\sin^2 h \sin 1''}$$

provided that $A_0 - A$ is measured in seconds of arc.

This is a convenient converging series for the determination of the difference between A and A_0, in which the terms diminish so rapidy that in all ordinary work it is not necessary to take into account any term except the first. Thus, if the observations are made at a place in latitude 30°, on a star with a polar distance of 30°, and are continued for fifteen minutes of time on each side of elongation, the extreme value of $h - h_0 = 3° \, 45'$. The corresponding value of the first term in the series then works out at 229″, or 3′ 49″, and that of the second term at less than $\frac{1}{2}''$. If $t - t_0 = 30$ minutes, or $h - h_0 = 7° \, 30'$, then under the same conditions the first term = 902″ and the second term only $5\frac{1}{2}''$. With the same polar distance and in the same latitude, the limiting value for $t - t_0$, in order that the second term may not be greater than 1″, is about 19 minutes. On repeating the calculations for a place in latitude 20°, and again for a place in latitude 40°, it is found that in neither case does the limiting value of $t - t_0$ differ by more than a minute from the value previously found if the second term in the series is to be less than 1″.

It thus appears that, even if the mathematical reduction of each single observation is to be correct within 1″ of arc, it is sufficient to use only the first term of the series if the observations extend over a period of about 19 minutes on each side of the elongation. The average of the whole series may be correct within this limit, even if the time extends over a considerably longer period, because the error in reduction will exceed 1″ only in the case of the extreme observations.

A further considerable simplification would be made in the reduction if it were possible to treat the denominator as constant and write sin h_0 instead of sin h. With any single observation the error made, if this is done, may be considerable. For instance, at a place in latitude 30°, if $p=30°$, for an observation made 15 minutes before elongation, the difference made in the value of the second term, when sin h_0 is written in the denominator instead of sin h, is about 5″, whilst for an observation made 30 minutes before elongation the difference is about 35″. But, if we have a series of fairly well-balanced observations made both before and after elongation, the values of h range fairly evenly on each side of h_0, and on averaging up the set there will be very little difference whether we use h or h_0, the difference being generally of the order of 1″. So that in such a case it is usually quite sufficient for the surveyor to use h_0 instead of h. We may then make a further slight simplification by putting

$$\frac{\sin A_0 \cos p}{\sin h_0} = \tan A_0 \cos^2 p$$

PRACTICAL COMPUTATION.

We therefore conclude that, for the ordinary work of the surveyor, a series of well-balanced observations extending to about half an hour on each side of elongation on any circumpolar star may be reduced to a series of observations at elongation by the formula

$$A_0 - A = \tan A_0 \cos^2 p \, \frac{2 \sin^2 \frac{1}{2} (h_0 - h)}{\sin 1''} \qquad \ldots \quad (6)$$

in which $A_0 - A$ is given in seconds of arc.

If, however, only one or two observations are to be reduced, as may be the case if the star at elongation has been obscured by clouds, or the observations are badly balanced and have been made mostly on one side of elongation, or if the greatest possible degree of accuracy is required in the computations, the formula used should be

$$A_0 - A = \sin A_0 \, \frac{\cos p \; 2 \sin^2 \frac{1}{2} (h_0 - h)}{\sin h \sin 1''}, \qquad \ldots \quad (7)$$

This form may be obtained directly from (5) by considering $A_0 - A$ as a small angle so that the sine may be written equal to its circular measure.

If it is required to make the computation within 1″ then, for observations more than 18 minutes from elongation, the value of $A_0 - A$ given by formula (7) should be corrected by being decreased by the amount

$$\sin 2 A_0 \frac{\cos^2 p \; 2 \sin^4 \frac{1}{2} (h_0 - h)}{\sin^3 h \sin 1''} \quad \ldots \quad \ldots \quad (8)$$

As the expression $\dfrac{2 \sin^2 \frac{1}{2} (h_0 - h)}{\sin 1''}$ has to be evaluated in the reduction of circum-meridian observations for latitude, tables of the values of the expression and its logarithm have been prepared, and are available in Chauvenet's Astronomy, Close's Trigonometrical Surveying, and other works. Similar tables for $\dfrac{2 \sin^4 \frac{1}{2} (h_0 - h)}{\sin 1''}$ are also available. The computation by any one of these formulae is much facilitated by the use of these tables. Five-figure logs. are sufficient.

Writing $\tan A_0 \cos^2 p = B$, $m = \dfrac{2 \sin^2 \frac{1}{2} (h_0 - h)}{\sin 1''}$,

(6) becomes

$A_0 - A = B\,m$, where B is a constant.

Thus for each observation we get $A_0 = A + B\,m$, and, averaging the whole series,

mean value of A_0 = mean value of $A + B \times$ mean value of m.

Therefore, mean angle between R.M. and star at elongation = mean observed angle between R.M. and star $\pm B \times$ mean value of m.

EXAMPLE.

In the following example the method is applied to the reduction of a series of observations taken by Mr. Calder, surveyor, upon Canopus near elongation:—

Star observed—Canopus.
Place—Rendelsham.
Right Ascension—6h. 22m. 06s.
Latitude—37° 32′ 40″ S.
Declination—52° 38′ 43″ S.
Longitude—9h. 20m. 40s. E.
Date—December 9, 1914.
Standard Meridian—9h. 30m. E.

COMPUTED VALUES.

Standard time at elongation—9h. 45m. 32s. p.m.

$A_0 = 49° 55' 44''$

$h_0 = 54° 04' 50''$

Face.	Object.	Mean Vernier Readings on Horizontal Circle.			Standard Time of Observation.			Interval of Mean Time between Observation and Elongation.		Corresponding Interval in Sidereal Time.	
		°	″	′	h.	m.	s.	m.	s.	m.	s.
R	R.M.	360									
R	Star	83	16	00	9	32	44	12	48	12	50
L	Star	83	15	15	9	34	37	10	55	10	57
L	R.M.	360									
L	Star	83	13	45	9	38	25	7	07	7	08
R	Star	83	13	00	9	40	15	5	17	5	18
R	R.M.	360									
R	Star	83	12	15	9	43	05	2	27	2	27
L	Star	83	12	45	9	45	11		21		21
L	R.M.	360									
L	Star	83	12	15	9	48	40	3	08	3	09
R	Star	83	13	15	9	50	55	5	23	5	24
R	R.M.	360									
R	Star	83	16	45	9	58	17	12	45	12	47
L	Star	83	18	15	10	01	00	15	28	15	31
L	R.M.	360									

Mean observed angle between star and R.M., 83° 14′ 21″.

Solving by means of (6), we obtain from the tables:—

$t_0 - t$		m
m	s	
12	50	323·3
10	57	235·4
7	08	99·9
5	18	55·1
2	27	11·8
	21	0·2
3	09	19·5
5	24	57·2
12	47	320·8
15	31	472·6
	10)	1595·8
Mean value of m		159·6

$\log \tan A_0 = 10·07509$

$\log \cos^2 p = 9·80062$

$\log 159·6 = 2·20303$

$\log 120 \ldots 2·07874$

$\therefore B\ m = 120'' = 2'$

∴ mean value of angle between R.M. and star at elongation
$=83° \; 14' \; 21'' - 2' \; 0'' = 83° \; 12' \; 21''$

The computation by means of the more accurate formula (7) is rather longer. In this case we write

$$B = \sin A_0 \cos p \text{ and } m = \frac{2 \sin^2 \frac{1}{2} (h_0 - h)}{\sin h \sin 1''}$$

and work on the same lines as before. To illustrate the method the computation in this case is also worked out as follows:—

$t_0 - t$		$h_0 - h$			h			$\log \frac{2 \sin^2 \frac{1}{2} (h_0 - h)}{\sin 1''}$	$\log \sin h$	$\log m$ = difference of two preceding columns.	m
m.	s.	°	′	″	°	′	″				
12	50	3	12	30	57	17	20	12·50960	9·92501	2·58459	384·2
10	57	2	44	15	56	49	05	12·37178	9·92269	2·44909	281·5
7	08	1	47	00	55	51	50	11·99958	9·91788	2·08170	120·7
5	18	1	19	30	55	24	20	11·74157	9·91550	1·82607	67·0
2	27		36	45	54	41	35	11·07136	9·91173	1·15963	14·4
	21		5	15	54	10	05	9·38117	9·90888	$\bar{1}$·47229	0·3
3	09		47	15	53	17	35	11·28965	9·90401	1·38564	24·3
5	24	1	21	00	52	43	30	11·75780	9·90080	1·85700	71·9
12	47	3	11	45	50	53	05	12·50621	9·88979	2·61642	413·4
15	31	3	52	45	50	12	05	12·67446	9·88553	2·78893	615·1

10) 1992·8

Mean value of m ... 199

$\log \cos p = 9·90031$
$\log \sin A_0 = 9·88380$
$\log 199 = 2·29885$

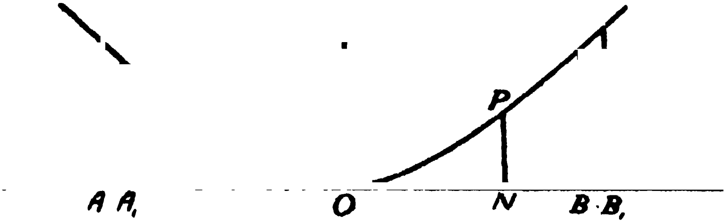
$\log 121 = 2·08296$
$\therefore B \; m = 121'' = 2' \; 01''$

∴ mean value of angle between R.M. and star at elongation
$=83° \; 14' \; 21'' - 2' \; 01'' = 83° \; 12' \; 20''$

The difference between the results of the two calculations is so small that clearly the more simple approximate method is quite sufficient for the surveyor. If the computation be made for the last four observations only, the difference between the results of the two methods amounts to 8″, and for the last observation alone the difference is 19″. For the surveyor it is only necessary to use the more accurate method of calculation for unbalanced observations at a considerable time from elongation.

THE EFFECT OF AN ERROR IN THE TIME.

In the final reduction of the results we sum up a number of terms of the form (6), and since $h_0 - h$ is a small angle we may practically take each term to be of the form $k\ x^2$, where k is a constant and x is the difference in time between elongation and the observation. Taking the mean of a number of evenly distributed terms of this form is equivalent to finding the mean value of the ordinate to the curve $y = k\ x^2$. The observations may thus be represented by a parabolic curve as in the figure, the ordinate $P\ N$ at any point representing the correction $A_0 - A$ corresponding to an observation made at a time from elongation represented by $O\ N$.



It the observations extend evenly over a time, a, on each side of elongation (from A to B), the mean value of the ordinate y is

$$\frac{1}{2a}\int_{-a}^{+a} k\ x^2\ d\ x = \frac{k\ a^2}{3}$$

If, however, there is an error, b, in the time, the observations will really extend from A_1 to B_1 (from $a - b$ on one side to $a + b$ on the other), and the computed mean value of the ordinate will be

$$\frac{1}{2a}\int_{-a+b}^{a+b} k\ x^2\ d\ x = \frac{k\ a^2}{3} + k\ b^2$$

The error in the computed azimuth will thus be $k\ b^2$, varying as the square of the error in time.

We have already computed that in latitude 30°, with a star having a polar distance of 30°, the value of $k\,b^2 = 3'\ 49''$, if $b = 15$ min. Therefore, if under these conditions of observation the error amounts to $1'$, the value of $b = \sqrt{\frac{60}{229}} \times 15 = 7{\cdot}6$ min. If the error $= 1''$, the value of $b = \sqrt{\frac{1}{229}} \times 15 = 1$ min.

It thus appears that, *provided the observations extend evenly over an equal time on each side of elongation*, there is no need for the surveyor to know the local time with great precision, an error of 1 minute in the time producing an error of only about 1″ in the azimuth.

But if the observations do not extend on each side of elongation the case is different, and a more accurate knowledge of the time is essential. Suppose, for instance, that the observations are all on one side of elongation, extending from o to a, the mean value of the ordinate to the curve is then

$$\frac{1}{a}\int_{o}^{a} k$$

If, however, there is an error, b, in the time, the computation will extend from b to $a + b$, and the computed mean value of the ordinate is

$$\frac{1}{a}\int_{b}^{a+b} k\,x^2\,d\,x = k\left(\frac{\quad}{3} + a\,b + b^2\right)$$

The error here amounts to $k\ b\ (a + b)$.

If b is 1 min. and a is 15 min., the error $= 16\,k$ and under the same circumstances as before will $= 16''$, being 16 times as great as when the observations extend for 15 min. on each side of elongation.

Where an accurate determination is sought, the investigation shows the desirableness of obtaining a series of observations distributed as evenly as possible on each side of elongation.

SECOND METHOD, HORIZONTAL ANGLE AND ALTITUDE BEING NOTED AT EACH OBSERVATION.

With the same notation as before, the star being in any position, we have

$$\cos p = \cos c \cos z + \sin c \sin z \cos A$$

Writing $x = z - z_0$, this becomes

$$\cos p = \cos c \cos (z_0 + x) + \sin c \sin (z_0 + x) \cos A$$

p, c, and z_0 being constants, this equation gives A as an implicit function of x.

Differentiating the equation three times in succession, the work being rather long but quite straightforward, we find that when $x = o$

$$\frac{dA}{dx} = o$$

$$\frac{d^2A}{dx^2} \qquad \frac{\cot p}{\sin z_0}$$

$$\frac{d^3A}{dx^3} \qquad \frac{3 \cot p \cos z_0}{\sin^2 z_0}$$

Therefore by Taylor's Theorem

$$A = A_0 - \frac{\cot p}{\sin z_0} \frac{(z - z_0)^2}{2} \sin 1'' + \frac{\cot p \cos z_0}{\sin^2 z_0} \frac{(z - z_0)^3}{2} \sin^2 1'' \qquad (9)$$

provided that $A_0 - A$ and $z - z_0$ are expressed in seconds of arc.

To get some idea of the relative values of the terms in this series, we find, if the star observed has a polar distance of 30° and the latitude is also 30°, then $z_0 = 54° \, 44' \, 09''$, and if $z - z_0 = 1°$, the second term works out at 66″ and the last term to 0·8″. If $z = z_0 = 2°$ the values become 264″ and 6″ respectively.

The last term in (9) is equal to

$$\frac{\cos^2 p \cos c}{\sin p \, (\cos^2 p - \cos^2 c)} \times \frac{(z - z_0)^3}{2} \sin^2 1''$$

and has therefore an infinite value if $p = c$, in which case the star passes through the zenith. This is clearly of no practical importance.

The following are the values of the last terms in different latitudes for a star 30° distant from the celestial pole, if $z - z_0 = 1°$:—

Latitude.	Value of last term in (9).
50°	3·5″
40°	1·5″
30°	0·8″
20°	0·4″
10°	0·2″
0°	0″

If $z - z_0 = 2°$ the preceding values should be multiplied by 8.

It follows, therefore, that for the ordinary work of the surveyor the correction involved in the last term of the series is quite negligible for observations extending over a range of altitude of 2°, or 1° on each side of elongation, provided that the star does not pass within 10° of the zenith. At places near the equator the observations may clearly extend over a very much greater range of altitude with the same degree of precision.

To determine over what range of time the observations may extend, we find on differentiating the equation

$$\cos z = \cos c \cos p + \sin c \sin p \cos h$$

that $\dfrac{d\,z}{d\,h} = \dfrac{\sin c \sin p \sin h}{\sin z} = \sin p$ for a star at elongation. This $= \frac{1}{2}$, if $p = 30°$.

Thus the rate of change of altitude at elongation does not depend on the latitude, but simply on the polar distance of the star, and for a star distant 30° from the pole we have

$$d\,h = 2\,d\,z$$

Therefore, if $d\,z = 1°$, $d\,h = 120'$ of arc, or 8 minutes of time, the altitude of the star near elongation thus changes by 1° in about 8 minutes. For stars closer to the Pole the time taken for the same change of altitude will be greater.

PRACTICAL COMPUTATION.

We conclude that for a set of observations extending over a range of altitude of about 2°, or 1° on each side of elongation, occupying, in the case of a star with a polar distance of 30°, about 16 minutes of time, it is amply sufficient to use the formula

$$A_0 - A = \frac{\cot p}{\sin z_0} \frac{(z - z_0)^2}{2} \sin 1'' \quad \ldots \quad \ldots \quad (10)$$

It should be noticed that the error made by the use of this formula in the final reduction of a set of observations will be very much less than the error made in the reduction of the single observation furthest from elongation. We have based the stated limitations upon the error made in the reduction of the single observation, so that for a complete set of observations the time occupied may be extended somewhat beyond the limits given above. In low latitudes the observations may extend over a greater range than in high latitudes. In latitude 10°, for instance, the observations may extend over half an hour, and formula (10) will still give the average result of the set of readings correct within less than 1".

If the range of altitude is too great, or it is desirable to compute $A_0 - A$ with the greatest precision possible, then this value must be *reduced* if $z > z_0$, or *increased* if $z < z_0$, by the amount

$$\frac{\cot p \cos z_0}{\sin^2 z_0} \frac{(z - z_0)^3}{2} \sin^2 1'' \quad \ldots \quad \ldots \quad (11)$$

The computation by means of (10) is somewhat facilitated by making use of the same tables for circum-meridian calculations as have been shown to be suitable for the reduction by the first method. For since $z - z_0$ is a small angle, we have, within the degree of accuracy to which the tables are computed,

$$\frac{(z - z_0)^2}{2} \sin 1'' = \frac{2 \sin^2 \frac{1}{2} (z - z_0)}{\sin 1''}$$

and consequently we can take the value of $\frac{(z - z_0)^2}{2} \sin 1''$ straight from the tables.

Then, writing

$$B = \frac{\cot p}{\sin z_0}, \quad m = \frac{(z - z_0)^2}{2} \sin 1''$$

we get for each observation, just as in the previous method,

$$A_0 = A + B\,m$$

or, angle between R.M. and star at elongation,
= observed angle between R.M. and star ± $B\,m$.

Since B is a constant, we therefore get, on averaging the whole set of observations:—

Mean angle between R.M. and star at elongation
= mean observed angle between R.M. and star
± B × mean value of m.

Whether the + or − sign is to be used depends upon the position of the R.M. and upon which angle between the star and R.M. is measured. It will be obvious in any particular case which sign should be taken.

If the tables for m are not available, then it is better to write

$$B = \frac{\cot p}{\sin z_0} \frac{\sin 1''}{2}, \quad m = (z - z_0)^2$$

and proceed as before, this time computing m for each observation. The use of the tables does not thus really make very much difference.

A defective knowledge of refraction does not seriously affect the accuracy of the work. For even if the altitude is in error by 15″, the resulting error in azimuth is only about three-quarters of a second of arc.

The following example illustrates the method of reduction. It will be seen that the calculations are simple, and the method is undoubtedly capable of much greater accuracy than the ordinary methods of making elongation observations:—

Star observed—α^1 Crucis.
Right Ascension—12h. 21m. 54s.
Declination—62° 37′ 47″ S.
Date—March 5, 1915.
Place—Burnside.
Latitude—34° 55′ 38″ S.
Longitude—9h. 14m. 36s. E.
Standard Meridian—9h. 30m. E.

COMPUTED VALUES.

Standard time at elongation—9h. 13m. 18s. p.m.

$$A_0 = 34° \; 06' \; 25''$$
$$z_0 = 49° \; 51' \; 22''$$

	Object	Mean Vernier Readings on Horizontal Circle.			Observed Zenith Distance.			z = Observed Zenith Distance Corrected for Refraction.			$z - z_0$		m
		°	′	″	°	′	″	°	′	″	′	″	″
R	R.M.	360											
R	Star	76	56	30	50	53	00	50	54	10	62	48	34·36
R	Star	76	55	30	50	26	00	50	27	09	35	47	11·15
R	Star	76	55	00	49	57	15	49	58	23	7	01	0·48
L	Star	76	55	15	49	36	00	49	37	07	14	15	1·77
L	Star	76	55	45	49	13	45	49	14	51	36	31	11·63
L	Star	76	57	00	48	38	30	48	39	34	71	48	44·92
L	R.M.	360											

6) 104·26

Mean value of m ... 17·38

Mean observed angle between star and R.M. = 76° 55′ 50″

$$B = \frac{\cot p}{\sin z_0} = \frac{\tan 62° \; 37' \; 47''}{\sin 49° 51' \; 22''} = 2{\cdot}527$$

Therefore mean value of angle between R.M. and star at elongation

$$= 76° \; 55' \; 50'' - 2{\cdot}527 \times 17{\cdot}38''$$
$$= 76° \; 55' \; 50'' - 44''$$
$$= 76° \; 55' \; 06''$$

NOTES ON THE AMYCTERIDES IN THE SOUTH AUSTRALIAN MUSEUM, WITH DESCRIPTIONS OF NEW SPECIES.—PART II.

By EUSTACE W. FERGUSON, M.B., Ch.M.

[Read April 8, 1915.]

In the present part the remaining genera of the subfamily are dealt with. These comprise chiefly *Acantholophus*, *Cubicorrhynchus*, and the genera of the *Euomides*. Twenty species and two genera are proposed as new; the new species belong to the following genera: *Acantholophus* (6), *Cubicorrhynchus* (6), *Molochtus* (1), *Acherres* (3), *Melanegis* (1), *Amorphorrhinus* (1), *Brachymycterus* (1), and *Cucullothorax* (1). The two new genera are: *Brachymycterus* and *Cucullothorax*. In addition to the species contained in the accompanying list, there were a number of female specimens of *Cubicorrhynchus* which it was impossible to identify; these were not listed, though some may be possibly new. It was also found impossible to absolutely identify a number of species belonging to the *Euomid* genera, in particular to *Dialeptopus* and *Tetralophus*. Many of these species are so poorly described that comparison with the types, mostly in the British Museum, will be necessary to fix the species. A number of specimens sent belong to species and genera already dealt with in the first part of this paper. A separate list of these has been given, for the sake of recording their localities.

130. *Acantholophus gladiator*, Pasc., ♂.—Western Australia: Mullewa (J. F. May).

131. *Acantholophus apicalis*, Macl.—South Australia: Mount Lofty (S. H. Curnow). Several specimens of both sexes, mostly without exact locality label.

132. *Acantholophus dumosus*, Bohem.—Western Australia: Swan River, York. Some of the specimens differ from the usual form in having small but acute subapical spines on the elytra. Specimens from Blackburn's collection also differ in having the external rostral margin acutely raised in front.

133. *Acantholophus dumosus*, Bohem., var. *brevicornis*, Ferg.—A single female labelled "South Australia."

134. *Acantholophus transitus*, Macl.—Western Australia: Capel River (W. D. Dodd).

135. *Acantholophus browni*, n. sp.

136. *Acantholophus amycteroides*, Macl.—One female labelled "Ardrossan." One female was labelled "North-west South Australia, Wells Expedition, 1903. H. Basedow."

137. *Acantholophus niveovittatus*, Blackb.—Western Australia: Cue, Mullewa, Southern Cross.

138. *Acantholophus franklinensis*, Blackb. (?)—South Australia: Yeelanna. Several specimens which I doubtfully identify as this species, partly because they come from fairly close to the type-locality.

139. *Acantholophus hypoleucus*, Bohem. Western Australia: York, Fremantle.

140. *Acantholophus humeralis*, Macl.—Western Australia: Ankertell (H. W. Brown).

141. *Acantholophus spinosus*, Macl.—Western Australia: Warren River, York.

142. *Acantholophus suturalis*, Bohem.—Western Australia: Darling Ranges, Bunbury. A female labelled "North-west South Australia, Wells Expedition, 1903. H. Basedow." Specimens from Blackburn's collection, labelled "*A. lateralis*, Bohem.," appear to belong to this species; probably the names will prove to be synonymous. *A. spinosus* seems little more than a variety.

143. *Acantholophus kreffti*, Macl.—Queensland: Charters Towers.

144. *Acantholophus tennantensis*, n. sp.

145. *Acantholophus tribulus*, Macl.—South Australia: Yeelanna, Port Lincoln.

146. *Acantholophus simulator*, n. sp.

147. *Acantholophus adelaidae*, Waterh.—South Australia: Adelaide, Mount Lofty, Wilmington, Kangaroo Island.

148. *Acantholophus*, sp. (?)—A female from Nairne differs in being decidedly larger than typical specimens; it is possibly distinct.

149. *Acantholophus halmaturinus*, n. sp.

150. *Acantholophus gravicollis*, Macl.—South Australia: Port Lincoln, Yeelanna, Pinnaroo.

151. *Acantholophus tasmaniensis*, Lea.—Tasmania: Hobart.

152. *Acantholophus marshami*, Kirby.—New South Wales: Sydney.

153. *Acantholophus mucronatus*, Macl.—New South Wales: Blue Mountains.

154. *Acantholophus spinifer*, Macl.—Victoria: Tallarook.

155. *Acantholophus*, sp (?)—New South Wales: Yass. Several specimens of a species allied to *A. spinifer*, but probably distinct.

156. *Acantholophus echidna*, Macl.—New South Wales: Blue Mountains (Blackburn).

157. *Acantholophus alpicola*, n. sp.

158. *Acantholophus squalidus*, Macl.—No locality.

159. *Acantholophus aureolus*, Bohem.—Western Australia. This species is almost certainly *A. echinatus*, Guèr.

160. *Acantholophus crenaticollis*, Macl.—South Australia: Port Lincoln, Ardrossan.

161. *Acantholophus denticollis*, Macl.—New South Wales: Blue Mountains, Sydney.

162. *Acantholophus planicollis*, Waterh.—South Australia: Adelaide, Mount Lofty, Kangarilla, Victor Harbour, Wilmington.

163. *Acantholophus foveirostris*, Lea.—South Australia: Kangaroo Island.

164. *Acantholophus squamosus*, Macl.—Victoria.

165. *Acantholophus scaphirostris*, n. sp.

166. *Acantholophus blackburni*, nom. nov. = *A. simplex*, Blackb.—A new name is necessary, as Blackburn's name is preoccupied by *A. simplex*, Pasc. The specimen in the collection is labelled "♀ type."

167. *Acantholophus granulatus*, Sloane (type).—Central Australia: Barrow Range (♂); Everard Range (♀).

168. *Cubicorrhynchus* (?) *maximus*, Macl.—Western Australia: Beverley, Cue, Kalgoorlie. The position of this species is open to considerable question; to my mind it is certainly congeneric with *Acantholophus granulatus*, Sloane, and *A. blackburni* (= *A. simplex*, Blackb.). The position of these two species in *Acantholophus* is, however, open to doubt.

169. *Hyborrhynchus bicornutus*, Macl.—South Australia: Port Lincoln, Kangaroo Island.

170. *Hyborrhynchus maculatus*, Macl.—Western Australia.

171. *Hyborrhynchus*, sp (?)—Western Australia: Capel River (Dodd). A single female apparently belonging to an undescribed species.

172. *Hyborrhynchus* (?) *rugosus*, Macl.—Western Australia.

173. *Acantholophus* (?) *convexiusculus*, Macl.—South Australia: Kangaroo Island, Port Lincoln; Victoria. A new genus is required for the reception of this species, which Macleay put both in *Acantholophus* and *Hyborrhynchus* (*H. mastersi*).

174. *Molochtus hercules*, n. sp.

175. *Molochtus tibialis*, Sloane.—Central Australia (Elder Exped., co-type): Idracowra Spring; North-west South Australia (Wells Exped.); South Australia: Murat Bay. Specimens from Cue, Western Australia (Horace Brown), differ from typical specimens in their rather rougher elytral sculpture. This, however, appears to be a variable character, as some of the Elder Exped. specimens are rougher than others.

176. *Molochtus gagates*, Pasc.—Western Australia: Mullewa. This is the species usually identified in Australian collections as *M. gagates*. I believe, correctly so; at the same time, Pascoe's description and figure would fit almost equally well some females of *M. tibialis*, Sloane. If this identification be correct, *M. gagates* is certainly specifically distinct from *M. tibialis*.

177. *Cubicorrhynchus dohrni*, Waterh.—Western Australia: Perth. Specimens from Beverley, Western Australia, differ somewhat from the Perth specimens in the elytral tubercles. I do not think they are really distinct.

178. *Cubicorrhynchus bohemanni*, Bohem.—Western Australia: Beverley, Geraldton, Kalgoorlie.

179. *Cubicorrhynchus occultus*, Sloane.—Central Australia: Frazer Range (Elder Exped., type); Western Australia: Kalgoorlie, Coolgardie.

180. *Cubicorrhynchus modestus*, Sloane. — Type, Elder Exped. Unfortunately, the type is a female, and cannot, therefore, be readily placed. It agrees fairly well with the female of *C. valgus*, Lea; but until a male from the type locality of *C. modestus* (Barrow Range) is available it would be extremely unwise to identify *C. modestus* with *C. valgus*.

181. *Cubicorrhynchus valgus*, Lea.—Western Australia.

182. *Cubicorrhynchus calcaratus*, Macl.—South Australia: Port Lincoln, Mount Lofty, Blinman, Arno Bay, Blanchetown, Terowie, Ardrossan, Murat Bay, Dowlingville, Moonta, Port Pirie. The extensive series of this species shows considerable variation in size, and to a slight extent in sculpture. Most of the female specimens of *Cubicorrhynchus*, returned as unidentifiable, belong either to this species or to *C. maculatus*, Macl.

183. *Cubicorrhynchus maculatus*, Macl.—South Australia: Mount Lofty, Adelaide, Wilmington, Lyndoch, Terowie, Blanchetown, Mannum, Murray Bridge, Wirrabarra, Ardrossan, Ouldea; New South Wales;

Victoria: Victorian Alps. An extensive series, showing considerable variation in size and sculpture. I cannot, however, regard them as belonging to more than one species.

184. *Cubicorrhynchus taurus*, Blackb.—South Australia: Lake Callabonna, Adelaide, Farina, Blanchetown, Lucindale; Victoria. A specimen, from Lake Callabonna, is labelled "*Cubicorrhynchus taurus*" in Blackburn's handwriting, and seems likely to be the type, which was from this locality, and should be in the Museum collection. Specimens from Longreach, Queensland, probably represent a variety; they are smaller than typical specimens, and have more evident elytral granules.

185. *Cubicorrhynchus strigicollis*, n. sp.

186. *Cubicorrhynchus quadraticollis*, n. sp.

187. *Cubicorrhynchus substrigosus*, n. sp.

188. *Cubicorrhynchus curvipes*, n. sp.

189. *Cubicorrhynchus aureomaculatus*, n. sp.

190. *Cubicorrhynchus rectipes*, n. sp.

191. *Cubicorrhynchus mussoni*, Blackb. (?)—A specimen labelled "Mount Lofty Ranges" agrees fairly well with New South Wales specimens of this species in my own collection. I think the South Australian locality is probably wrong.

192. *Cubicorrhynchus*, sp. (?)—Queensland: Dalby. A single male belonging to a species allied to *C. mussoni*, Blackb. I have numerous specimens of this species from Southern Queensland, but as its position is somewhat anomalous have deferred naming it until the genus as a whole is revised.

193. *Cubicorrhynchus*, sp. (?)—Northern Territory. Two specimens, labelled "Northern Territory," belong to a new species, but are both females. In the absence of a male, I hesitate to describe, particularly as it is closely allied to, if not identical with, a species in Mr. Lea's collection from Darling Ranges, Western Australia.

194. *Cubicorrhynchus*, sp (?)—North-west South Australia (Wells Exped.). A single female, in bad condition, belonging to a new species, with curious head and rostrum.

195. *Cubicorrhynchus* (?) *spinicollis*, Macl.—Western Australia: Beverley.

196. *Cubicorrhynchus* (?) sp. (?)—Western Australia: Kalgoorlie. A species close to, but distinct from, *C. spinicollis*, Macl. It is also close to *Hyborrhynchus*

aurigena, Blackb.; it, however, differs from the specimen I have so named. As, however, the Museum specimen comes from the same locality as Blackburn's type, it is possibly his species.

197. *Cucullothorax horridus*, n. gen. and sp.
198. *Alexirhea*, sp. (?)—Western Australia. A single female, agreeing, in the preapical elytral projection, with *A. falsifica*, Pasc., but with projecting shoulders.
199. *Euomus insculptus*, Bohem.—Western Australia: Bunbury, Capel River.
200. *Euomus stephensi*, Gyll.—Western Australia: Warren River. A specimen from Mount Barker differs slightly, and perhaps represents a variety.
201. *Euomus*, sp. (?)—A specimen from Western Australia, Blackburn's collection; probably belongs to a distinct species. As it is very closely allied to *E. stephensi* I prefer to leave it undescribed for the present.
202. *Euomus scorpio*, Boisd. Western Australia: Bunbury.
203. *Mythites basalis*, Boisd.—Western Australia. A specimen from South Australia (F. R. Zietz) represents either a distinct species or a well-marked variety of *M. basalis*. The specimen is, however, a female, and I do not care to describe it without seeing the other sex.
204. *Mythites degener*, Pasc.—South Australia: Port Lincoln
205. *Mythites tuberculatus*, Lea.—Tasmania; South Australia: Lucindale; Victoria.
206. *Mythites sulcicollis*, Germ.—South Australia: Ardrossan, Dowlingville, Yorke Peninsula. Most of the specimens are without locality. The series shows a good range of variation in size, and, to a less extent, in sculpture; but I do not think the specimens belong to more than one species.
207. *Mythites foveipennis*, Lea.—New South Wales: Blue Mountains (Blackburn).
208. *Mythites asperatus*, Pasc.—New South Wales: Sydney.
209. *Mythites*, sp. (?)—New South Wales: Blue Mountains. A single female belongs to a species which is probably new, but which is so close to *M. asperatus* that at present I do not think it advisable to describe it.
210. *Bubaris pithecius*, Pasc.—New South Wales: Cootamundra, Forest Reefs.

211. *Acherres mamillatus*, Pasc. — Western Australia: Geraldton, Beverley.
212. *Acherres globicollis*, Lea.—Western Australia.
213. *Acherres latus*, n. sp.
214. *Acherres pilosus*, n. sp.
215. *Acherres granulatus*, n. sp.
216. *Melanegis halmaturina*, n. sp.
217. *Amorphorrhinus australis*, Germ.—South Australia: Ardrossan.
218. *Amorphorrhinus muriceus*, n. sp.
219. *Brachymycterus auritus*, n. gen. and sp.
220. *Atychoria rudis*, Blackb. (co-type).—Central Australia.
221. *Aedriodes fastigatus*, Pasc.—Western Australia: Capel River.
222. *Aedriodes nodipennis*, Bohem.—Western Australia: Geraldton.
223. *Aedriodes innus*, Pasc.—Western Australia: Warren River, Beverley.
224. *Dialeptopus echinatus*, Lea.--Western Australia: Mullewa, Lennonville, Lake Austin.
225. *Dialeptopus lindensis*, Blackb.—South Australia: Yeelanna, Port Lincoln (co-type).
226. *Dialeptopus pyrifer*, Lea.—South Australia: Mount Lofty, Kangaroo Island.
227. *Dialeptopus collaris*, Bohem.—Western Australia: Tammin.
228. *Dialeptopus longipes*, Lea.—Western Australia: Mount Barker.
229. *Dialeptopus validus*, Blackb.—South Australia: Israelite Bay (co-type).
230. *Dialeptopus lugubris*, Blackb. (?)—South Australia: Fowler Bay. I have attached the above name with some doubt to a pair of specimens from Fowler Bay. On the whole, they agree with Blackburn's description, and are, I think, distinct from *D. validus*. I am unable to detect, however, the difference in the comparative lengths of the scape and claw-joint of the anterior tarsi, which Blackburn lays stress on. The depressions on the apical ventral segment are also more in keeping with *D. validus*. I might state here that, in my opinion, a deep circular depression is always indicative of the female in this genus. Two other specimens, one a male from Kangaroo Island, are considerably smaller, but I can detect no structural differences between them and the

specimens from Fowler Bay. One of the two specimens bears a number, "I. 1439," and attached to it is a note by A. M. Lea:—"I. 1439 in Blackburn's collection was named *lugubris*, and from Ooldea (Prof. Tate). But was struck out. Blackburn sometimes cancelled a number and made use of it later on for a different species, forgetting that he had more than one specimen bearing the number originally. This may or may not be his *lugubris*, therefore."

231. *Dialeptopus*, sp. (?)—Among the examples of this genus sent are a number of specimens which, after considerable and careful examination, I am inclined to regard as belonging to one variable species. Individual specimens vary much in size and in the number of the elytral tubercles, and to a less extent in the prothoracic crests. Several of the specimens are reddish in colour, but the majority are black; possibly, I think probably, the reddish colour is a mark of immaturity. A name has not been attached to these specimens, as I think that in all probability they may belong to *D. ferreus*, or *D. monachus*. Indeed, in several collections one or other of these names is attached to specimens which I regard as conspecific with the Museum examples. Unfortunately, both of Pascoe's descriptions are too meagre to enable one to identify his species from them, and until specimens can be compared with the types I think no good can result from attaching either of his names to these specimens. The series are mostly labelled "S. Australia, Rev. A. P. Burgess," or "Australia, old collection," but several are from Ardrossan.

232. *Dialeptopus*, sp. (?)—Two females labelled "Western Australia" probably belong to the same species as the last, but are slightly larger.

233. *Dialeptopus*, sp. (?)—South Australia. Several specimens, mostly without locality label, differ from the previous species, but were labelled "*D. ferreus*" in Blackburn's collection. Until the identity of Pascoe's species are established, I think it wiser to leave these specimens undescribed.

234. *Tetralophus elevatus*, Pasc. (?)—South Australia: Ardrossan, Mount Lofty, Clarendon. A long series of a species which I identify with some slight doubt as *T. elevatus*, Pasc. It is, moreover, the species to which that name is attached in all Australian collections. The specimens vary in size and in shape,

some of them appearing broader across the base of the elytra; probably these are males. The granules on the prothorax are also variable. The third elytral interstice bears a single tubercle abrupt posteriorly, but sloping anteriorly, the interstice being slightly raised but rapidly sinking towards the base; there are a few obsolete granules at the base of the tubercle.

235. *Tetralophus excursus*, Pasc. (?)—South Australia: Port Lincoln, Gawler. I attach this name to a species differing from the last, in having a row of granules or small tubercles on the third interstice anterior to the large tubercle, and gradually disappearing towards the base. It is named *T. excursus* in Blackburn's collection.

236. *Tetralophus*, sp. (?)—Kangaroo Island. Three specimens from Kangaroo Island perhaps represent a new species. One of them differs rather decidedly in the more granulate prothorax, with the crests farther apart; the other two seem closer to *T. elevatus* (?) but I am unable to separate them from the first-mentioned specimen. Until more are available I prefer to leave the species undescribed.

237. *Tetralophus sculpturatus*, Waterh.—South Australia: Lucindale; Victoria.

238. *Tetralophus*, sp. (?).—Victoria. A species, differing from *T. sculpturatus* in the smaller number of the elytral tubercles, may prove to be *T. incanus*, Pasc. or a variety of that species.

List of species belonging to genera listed in Part I.:—

Psalidura reticulata, Boisd.—New South Wales: Galston.
Psalidura leai, Ferg.—Victoria.
Psalidura brevicauda, Ferg.—Queensland: Dalby.
Psalidura grandis, Ferg.—Queensland: Bluff.
Psalidura flavosetosa, Ferg.—South Australia: Crecy, Murray River.
Talaurinus riverinae, Macl.—South Australia: Yeelanna.
Talaurinus simplicipes, Lea.—South Australia: Lucindale.
Talaurinus maculipennis, Lea.—Western Australia: Beverley, Kalgoorlie.
Talaurinus septentrionalis, Ferg.—Queensland: Coen River.
Talaurinus plagiatus, Ferg.—Queensland: Coen River.
Talaurinus tessellatus, Pasc.—Western Australia: Cue.
Talaurinus variegatus, Macl.—Queensland: Dalby.

Talaurinus M-elevatus, Lea.—New South Wales: Sydney.

Talaurinus bucephalus, Oliv.—New South Wales: Sydney.

Talaurinus semispinosus, Bohem.—Western Australia: Beverley.

Sclerorinus tristis, Boisd. (?)—South Australia: Mount Lofty.

Sclerorinus elderi, Sloane.—Western Australia: Cue.

Sclerorinus sublineatus, Germ.—Victoria: Sea Lake.

Sclerorinus vestitus, Macl.—Victoria: Sea Lake.

Sclerorinus stewarti, Macl.—South Australia: Murray River.

Sclerorinus mucronipennis, Ferg.—South Australia: Mount Gambier.

Sclerorinus bubalus, Oliv.—Tasmania: Hobart.

Sclerorinus germari, Macl.—South Australia: Mount Lofty. A single male varies from typical specimens in being narrower, in the absence of the white clothing along the third elytral interstice, and in the smaller and fewer tubercles on that interstice.

Notonophes cichlodes, Pasc.—Western Australia: Cue.

Notonophes taurus, Ferg.—Western Australia: Cue.

ACANTHOLOPHUS BROWNI, n. sp.

♂. Elongate, subparallel; closely allied to *A. transitus*, Macl., but larger, more elongate. Black; clothing moderately dense, subsquamose, pale golden-yellow, with silvery-white vittae. White scales scanty on head: present along median line and at base of sublateral vittae of prothorax; trivittate along each elytron; on the sides clothing the head, forming two broad lines on prothorax, indistinctly separated, a narrow line along eighth interstice and a broader line along lower border of elytra; under-surface rather thickly set with broad white squames; legs densely clothed with white.

Rostrum a little narrower than the head; dorsal surface much narrower than total width of rostrum; the external borders slightly raised, continued back into the supra-orbital crests: dorsal surface with a deep, almost linear, fovea in centre, and a fovea on each side of base; the oblique ridges present, but little marked off from rest of surface; rostrum limited behind by the intercristal ridge. Head concave in front, behind the intercristal ridge; supra-orbital crests short, single, with the apex directed backwards and upwards. *Prothorax* (5 × 6 mm.) rather flat on disc, with three transverse impressions, a subapical, a median (indistinct in centre), and a basal, the subapical impression extending backwards in the median line to two-fifths of the length of the prothorax; ocular lobes prominent; median line rather deeply impressed in the middle: median area of disc moderately broad, with a few scattered granules; sublateral areas with a few fine granules; median group of tubercles small, a pair moderately large, anterior to subapical constriction, a group of four small ones about middle, and a larger one nearer the middle line overlooking the basal impression, one on either side of middle line, at extreme base; lateral tubercles triangular, flattened above, outwardly directed, two anterior to middle, the second the larger, one posterior to middle, about size of anterior tubercle, also a small tubercle present anterior to subapical impression. *Elytra* (13 × 7 mm.) rounded behind shoulders, thence subparallel to before apex; base truncate; disc with rows of small punctures, the intrastrial granules moderately prominent; with three rows of tubercles; first row with about fourteen tubercles, extending from base to edge of declivity, basal tubercles very small, becoming progressively larger, the last three spiniform, the apical tubercle the largest; second row with nine to eleven similar tubercles, not quite reaching base, lower tubercles somewhat outwardly directed, reaching a slightly lower level than the first row; third row with a strong outwardly directed humeral tubercle, a subbasal tubercle about the same size or slightly larger, then four smaller ones to about middle; sides with intrastrial granules moderately evident, the interstices non-granulate. *Beneath* almost flat over ventral segments, excepting the first; metasternum glabrous, with scattered squames, but without evident punctures; ventral segments with a coarse reticulum of large oval punctures, separated by narrow septae, a white squame present as a rule in each puncture. Intermediate *tibiae* with a strong subapical emargination or notch.

♀. Rather larger, more ovate than the male. Head and prothorax similar. Elytra (14 × 9 mm.) more widened posteriorly, not parallel-sided; tubercles smaller, thirteen in first row and twelve in second (in the type), third row with two strong basal tubercles as in the male, followed by a row of eight, gradually becoming smaller, the first four or five distinctly tuberculiform. Beneath convex, with white squames, but without evident punctures. Intermediate tibiae hardly emarginate. *Dim.*—Male, 21 × 7 mm.; female, 22 × 9 mm.

Hab.—Western Australia: Ankertell (H. W. Brown). Type in author's collection.

Closely allied to *A. transitus*, Macl., but larger and relatively narrower, with much more numerous and considerably smaller elytral tubercles. The median prothoracic tubercles are more distinct than in *A. transitus*, though considerably smaller and differently arranged than in *A. amycteroides*. The puncturation of the ventral surface is much more distinct than in *A. transitus*. I have described *A. browni* at some length, partly because, though well known, *A. transitus* is far from adequately described, partly because I am not certain what features may be regarded as of generic or group, rather than specific, importance.

ACANTHOLOPHUS TENNANTENSIS, n. sp.

♂. In general appearance close to *A. simplex*, Pasc. Black; densely clothed with golden-brown squames, on the elytra obscurely maculate with white.

Rostrum short, rather wide, much dilated on the sides below the scrobes; the upper surface feebly concave in front, the external margins feebly raised, not angulate in front; the oblique ridges hardly traceable, and the basal foveae shallow. Head concave behind intercristal ridge; supra-ocular crests strongly developed, bifid; as viewed from in front, sloping inwards at base and joined across head in a strong intercristal ridge; posterior ramus of crest the larger, about the same size as in *A. simplex*, projecting outwards, upwards, and slightly backwards, the anterior ramus shorter, stouter, projecting forwards, the apex upturned. *Prothorax* (3 x 4 mm.) much as in *A. simplex*, the mesial series consisting of six spines on each side, arranged in single series, showing a slight deviation outwards in the middle; the spines short, blunt at apex, the basal two somewhat smaller than the others; external margin with a strong outwardly projecting spine about the middle, and a much smaller one conjoined with it at base anteriorly; the postero-lateral spine represented by a mere granule. *Elytra* (9 x 5 mm.) in general appearance as in *A. simplex;* seriate punctures shallow, only traceable from some directions; with three rows of tubercles, on the third, fifth, and seventh interstices, the other interstices with small granules, little evident except on the second; the first row of tubercles small and granuliform at the base of the elytra, the apical three large, spiniform, the apical spine projecting over the declivity; the second row about eight in number, the basal ones small, the last three or four large, acutely spiniform, the apical one situated halfway down declivity, at a more posterior level than the apical spine of the first row; the third row with a large outwardly projecting humeral tubercle, followed by four others, gradually decreasing in size, and extending to about the middle of the elytra. *Beneath* with apical segment rugosely punctured, the other segments with subobsolete punctures. *Legs* simple.

♀. Rostrum, head, and prothorax as in the male; the postero-lateral tubercles rather stronger, triangular. Elytra

(10 × 7 mm.) broader, with the granules rather more prominent, the second interstice with a single spine on each side, situated above the apical spine of the first row; first row of tubercles much degraded, only the apical tubercle really spiniform, though the preceding two are larger than the others and subspiniform; the second row similarly degraded, about thirteen in number, the last four larger and becoming spiniform; the third row with humeral and second tubercle large, the others much smaller than in the male, and rather more numerous. *Dim.*—Male, 14 × 5 mm.; female, 15·5 × 7 mm.

Hab.—Central Australia: Tennant Creek. Type male in South Australian Museum; type female in National Museum, Melbourne.

Close to *A. simplex*, Pasc., but separated, *inter alia*, by the difference in the supra-ocular crests. *A. tatei*, Blackb., is probably closely allied, but the postero-lateral spine in that species is described as bifid.

ACANTHOLOPHUS HALMATURINUS, n. sp.

♂. Close to *A. adelaidae*, Waterh., but larger and broader. Black; sparsely clothed with minute brownish adpressed subpubescence, hardly squamosity; the posterior femora with a pale subapical ring.

Rostrum much as in *A. adelaidae;* the external margins raised into a strong tubercle or spine, larger than in *A. adelaidae*, the margins sloping backwards from this spine to the base of the supra-ocular crests, low at the base, but closing in the outer side of the basal foveae: the supra-ocular crests bifid, the anterior branch much stronger than in *A. adelaidae*, projecting forwards and somewhat upwards, the posterior branch more slender (both branches, however, comparatively stout), the notch between deep and moderately wide; intercristal ridge slightly lower than in *A. adelaidae*. *Prothorax* (4 × 4·5 mm.) rather wider than in *A. adelaidae*, the dorsal surface rather closely set, all over, with small, but evident, granules; the median tubercles arranged much as in *A. adelaidae*, the anterior pair cristiform but less prominent, the median ones smaller and less definite than in *A. adelaidae* hardly larger than granules, the subbasal pair large, backwardly projecting, the basal tubercles moderately large; lateral tubercles triangular, more obtuse than in *A. adelaidae*, granulate on the upper surface, the anterior pair conjoined, the first being very small, the posterior tubercle single but with a small tubercle at base, posteriorly. *Elytra* (9 × 6 mm.) subparallel, gently rounded to base, and before apex; with rows of small granules, larger and more conspicuous than in *A. adelaidae;* with three rows of tubercles; first row granulate at base, becoming tuberculate about the middle, the last three only conical and spiniform, the apical tubercle the largest, situated on the edge of the declivity; second row with basal tubercles small, but definite, about ten in all, the last four conical, reaching about the same level posteriorly as the first row; third row smaller than in *A. adelaidae*, eight to ten in number, equal or subequal in size, the last two or three becoming smaller, and thence degenerating in a row of obsolete granules. *Ventral segments* subglabrous, with scattered punctures; apical ventral segment longitudinally convex, very feebly transversely concave posteriorly, the greater part subglabrous, with scattered punctures, the lateral parts with more dense subsetose clothing. *Legs* simple.

♀. Broader, more ovate than the male. Elytra with only the last two tubercles of the first row spiniform, the others traceable though small; second row with eight, third row with seven to eight tubercles. Beneath convex, subglabrous; apical segment with a feeble depression at apex. *Dim.*—Male, 15 x 6 mm.; female, 15 x 7 mm.

Hab.—South Australia: Kangaroo Island (J. G. O. Tepper). Closely allied to *A. adelaidae*, the differences noted above should readily separate it. Typical specimens of *A. adelaidae* also occur on the island.

ACANTHOLOPHUS SIMULATOR, n. sp.

♂. Small, elongate. Black; rather sparsely clothed above with minute brownish squames, the elytra feebly maculate with white on the sides and posteriorly; beneath with white, depressed, subsetose clothing; legs with similar clothing.

Rostrum short, broad; the dorsum hardly excavate, the margins raised into a strong conical tubercle above the insertion of the antennae; oblique ridges hardly raised above the general dorsal surface; the basal foveae deep, open laterally. Head concave in front behind the intercristal ridge, longitudinally, somewhat obsoletely, ridged; the supra-orbital crests conspicuous, bicornuate, the two horns arising from a common stem, the anterior directed forwards with a feeble curve upwards, the posterior and larger branch directed upwards with a feeble curve backwards. *Prothorax* (3·5 x 3·5 mm.) not greatly ampliate; the anterior margin slightly produced over the head above, without ocular lobes; the disc with three narrow transverse impressions and with the median line strongly depressed in the middle; median group of tubercles about six in number, the anterior pair cristiform, projecting over head, the other tubercles small, rounded, somewhat irregularly disposed, the subbasal tubercle slightly projecting over the basal impression;

lateral group of tubercles outwardly projecting, somewhat peg-shaped, not triangular, nor flattened above; three of the tubercles larger, two of these conjoined at base and situated anterior to the middle, the third posterior to the middle, a small tubercle situated in front of subapical impression, one in the middle but below the other tubercles, one posterior to the third large tubercle, and a smaller one posterior to the basal impression. *Elytra* (8 × 4·5 mm.) little widened on the sides, rounded to base and apex; punctures small and regular; with regular rows of rather prominent granules and three rows of tubercles; first row of tubercles about twelve in number, small at base, becoming progressively larger posteriorly, the last two or three spiniform, the apical tubercle the largest, overlooking the declivity; the second row running backwards and outwards, not quite reaching base, with about eight tubercles, the last four spiniform, outwardly directed, extending slightly beyond level of first row; the third row with a large humeral and second, or subbasal, tubercle, of about equal size, followed by a row of eight, becoming progressively smaller, not extending much beyond middle. *Beneath* very feebly convex, subglabrous, without evident punctures. *Legs* simple.

♀. Larger, more ovate; elytra wider, more rounded, the apex more produced, with tubercles smaller, the basal ones mere granules, and rather more numerous; beneath more strongly convex. *Dim.*—Male, 12 × 4·5 mm.; female, 14 × 6 mm.

Hab.—South Australia: Lucindale (A. M. Lea), Kangaroo Island (J. G. O. Tepper). Type in South Australian Museum.

The Kangaroo Island specimens show practically no clothing, but I cannot detect any difference between them and the Lucindale specimens. In general appearance this species resembles *A. adelaidae*, Waterh., and is so named in some collections, but the shape of the lateral prothoracic tubercles is quite different from the species which is common about Adelaide, and which I regard as *adelaidae*. *A. simulator* is closely allied to *A. tribulus*, but that species is smaller, with more acute lateral prothoracic tubercles and less conspicuous elytral granules.

ACANTHOLOPHUS ALPICOLA, n. sp.

♂. Large, elongate-elliptical, comparatively narrow. Black; fresh specimens densely clothed with dark-brownish squames.

Rostrum short, the upper-surface openly concave, with a deeper median impressed line; lateral margins strongly convex, declining towards apex and base; oblique ridges evident, though not greatly raised, arising separately from the intercristal ridge; basal foveae closed, although the outer boundary is somewhat depressed. Head strongly convex above, concave in front; supra-ocular crests single, elongate, running upward parallel to the head, with a slight inclination outwards, for the greater part of their length attached to the head; intercristal ridge distinct, though not greatly raised. Scrobes terminated far from the eyes; a rather wide impression running up into the base of the supra-ocular crest, behind the scrobes. Eyes large, ovate. *Prothorax* (3 x 4 mm.) gently convex from side to side; apical margin feebly produced above, with feeble ocular lobes; disc moderately closely set with small, depressed, subobsolete granules; with a shallowly depressed median area, widest in the middle, the median line more deeply impressed immediately in front of the middle; median tubercles about six in number, irregularly set, all small and rather inconspicuous, but some larger than others; lateral margins with two subequal triangular projections, the anterior composed of two conjoined tubercles, the second of which is the larger, the posterior of a single tubercle; a small tubercle situate in front of the subapical constriction, one between and below the two large tubercles, and one on the lateral-basal angle; sides irregularly scarred above, with a few obsolete granules; with a few scattered punctures below. *Elytra* (13 x 6·5 mm.) elongate-elliptical, comparatively narrow, strongly convex, the posterior declivity sloping much more gradually than usual; apex with a small, narrow incisure; base without the interstices projecting anteriorly; disc with seriate punctures small, obscurely connected across the interstices; with the third, fifth, and seventh interstices tuberculate, the others with small, subobsolete granules; first row of tubercles ten in number, extending from base to beginning of declivity, the basal ones small, slightly elongate, little raised, the last three or four becoming progressively larger and subacute, but none reaching a large size; second row with eleven tubercles, not reaching base, but extending to a more posterior level than the first row, the last six or seven subacute; third row six to seven in number, all comparatively small and backwardly projecting, the first and second sometimes conjoined; sides with punctures more defined, the interstices neither granulate nor tuberculate. *Beneath* convex over the abdomen from the second to fifth segments; rather closely set with small setigerous punctures, more distinct on the apical segment. *Legs* simple.

♀. Differs from the male in being broader and more robust. Head and prothorax as in the male. Elytra (14 x 8 mm.) obovate, each elytron separately produced at the apex into a strong mucro, the apex between being deeply emarginate; sculpture similar to that of the male, but the granules practically obsolete, only traceable with difficulty; first row of tubercles eight in number, more elongate but not more prominent, and more isolated than in the male; second row nine in number, the last four subacute; third row seven in number. Ventral segments convex, the basal segment also convex. *Dim.*—Male, 19 x 6·5 mm.; female, 20 x 8 mm.

Hab.—New South Wales: Mount Kosciusko (H. J. Carter); Victoria: Mount Baldy (H. J. Carter), Victorian Alps (T. Blackburn). Type in author's collection.

A remarkably distinct species, not close to any I am acquainted with. The types are completely destitute of clothing, but most of the Victorian specimens are moderately densely clothed. The Mount Baldy specimens differ somewhat in being smaller, and in having the supra-ocular crests projecting slightly more prominently from the head; in one specimen also there is distinct evidence of a division of the crest into two component parts.

ACANTHOLOPHUS SCAPHIROSTRIS, n. sp.

♂. Elongate, subparallel. Black; rather sparsely clothed above with minute, dingy-brown subpubescence; on the sides of the prothorax, sternal, and ventral segments, with larger, sparse, subsetose clothing; legs moderately densely clothed with greyish, femora with a lighter preapical ring.

Rostrum moderately long; the upper-surface rather deeply concave, the depressed area slightly narrowed and rounded off at base; the external margins straight, not greatly raised, subrectangulate, but not produced at apex, not depressed at base. Head separated from rostrum by a transverse sulcus above, not extending to the sides, no intercristal ridge present; convex, hardly, if at all, depressed in front, with two small granules on the forehead; supra-orbital crests rather short, set upright to plane of head, the upper margin slightly bidentate, the anterior dentation very feeble. Scrobes running back almost to eye, with an oblique upward extension towards base of crest. *Prothorax* (4 x 5 mm.) very slightly produced above; without ocular lobes; subapical constriction deep, parallel to and moderately close to apical margin: subbasal impression hardly traceable; disc gently transversely convex, set with small, discrete granules; median area not depressed, median tubercles small, granuliform, a large one present on each side of middle line, in front of the subapical impression, tubercles about six in number on each side, irregularly placed; lateral margins with a strongly produced, outwardly projecting tubercle, in front of middle, the posterior portion the larger, also with a very small subconical tubercle, posterior to middle, and with a small tubercle on each side, anterior to subapical impression; sides vertically scarred above, impunctate and non-granulate. *Elytra* (10 × 5·5 mm.) elongate-oval, apex widely rounded; base truncate, with forward projecting tubercles or granules at the bases of the first, third, and fifth interstices; seriate punctures small, open, somewhat transverse, with rows of small but distinct granules, somewhat confusedly arranged, appearing to lie between the punctures rather than on the interstices; interstices third, fifth, and seventh, tuberculate; third interstice with a row of small granules, becoming tuberculiform about the middle, the last three or four moderately large, spiniform, the apical tubercle situated on the edge of the declivity; fifth interstice with a row of nine tubercles, becoming progressively larger posteriorly, not quite reaching base, but extending to the same level posteriorly as the first row, the last four tubercles acute and spiniform, the apical tubercles of the first and second rows being about the same size; seventh interstice with a row of small outwardly projecting tubercles, extending from the humeral tubercle, and degenerating after the sixth or seventh into a row of granules, the third or fourth from the base generally slightly larger than the others; sides with seriate punctures more distinct, rather strongly transverse, giving sides a vertically rugose appearance; the interstices non-granulate. *Beneath* subnitid, with fine scattered setigerous punctures, set more closely on apical segment, the extreme apex slightly rugulose, metasternum obscurely, transversely tricarinate; basal ventral segment flattened, the others feebly transversely convex. *Legs* simple. *Dim.*—16 × 5·5 mm.

Hab.—Western Australia: Bridgetown (H. J. Carter, A. M. Lea), Warren River (W. D. Dodd). Type in author's collection.

There is a female of this species in Mr. Lea's collection; it differs from the male in being broader, and in having the basal abdominal segments convex. The elytral tubercles are also somewhat smaller. In the male the metasternum is transversely carinate about the middle, and the anterior and posterior margins are raised, to a less extent, giving the segment somewhat of a tricarinate appearance. The species is most closely allied to *A. eximius*, Macl., but is smaller, with smaller elytral tubercles.

MOLOCHTUS HERCULES, n. sp.

♂. Size large; elongate-ovate. Black; without clothing on body; setae present only on sides, of a light colour.

Rostrum deeply excavate, the centre depressed; the external dorsal borders thick, strongly raised, sinuous in outline, incurved towards base, rather coarsely punctate. Head strongly convex, sublaevigate, minutely transversely strigose posteriorly, with scattered obsolete punctures in front, with a semi-circular impression running from behind crests across the front of the head, ill-defined above, deeper laterally; with a small bidentate, supra-ocular crest on either side, the processes small, dentiform, the posterior the larger; forehead feebly convex between the crests; head separated from rostrum by a deep transverse sulcus, somewhat V-shaped in centre. *Prothorax* (7 × 7 mm.) subquadrate, widest in front of middle, the sides sloping very gradually towards base, much more abruptly towards apex; anterior margin truncate, with a small, obtusely-angulate projection behind eye; disc feebly convex, somewhat flattened above; with a deep circumferential sulcus, interrupted in the middle line, immediately behind apex, and with a wider concave depressed area at base; median line impressed anteriorly, thence hardly traceable; set with flattened, irregularly polygonal, contiguous granules, the facets fitting into each other; with four small dentiform tubercles on either side, an anterior pair on apical declivity, and a posterior pair near latero-basal angle; sides with granules more rounded, not extending more than about halfway towards coxae. *Elytra* (14 × 9 mm.) elongate, widest near base, gradually rounded towards apex, the latter somewhat produced, with a mucroniform projection, separated by a narrow emargination, on each side; base truncate, with a small dentiform tubercle on each side at humeral angle; disc flattened above, strongly declivous posteriorly; puncto-striate, striae narrow, punctures small, connected transversely by irregular sulci, frequently running across whole width of elytron; interstices not raised, granules depressed, flattened, confluent laterally; the whole sculpture confused, consisting of a series of wavy transverse elevations and depressions. *Beneath* flattened over basal ventral segments, the first segment somewhat hollowed out between the posterior coxae. Metasternum and two basal ventral segments with scattered granules, apical segments not granulate, somewhat rugosely punctate. Anterior *tibiae* without subapical emargination; all with moderately conspicuous granules on the under-surface; tarsi short, flattened, with peculiar claw-joint characteristic of the genus.

♀. More ovate than the male. Head and rostrum similar. Prothorax (5·5 × 6 mm.) smaller, widest about middle, tubercles at sides rather stronger, mesial line impressed throughout. Elytra (16 × 9 mm.) longer, more rounded on sides, less produced at apex, without humeral denticle at base; sculpture similar. Beneath, convex; basal segments not flattened, obscurely rugulose, with minute transverse scratches at sides of basal segments. Tibiae lighter, with long setae beneath but without granules. *Dim.*—Male, female, 23 × 9 mm.

Hab.—Western Australia: Kookynie (types), Kalgoorlie, Cue (W. H. Brown). In the Museum collection from Cue, also from Central Australia (Elder Exped.) and Coolgardie (Blackburn's collection). A male in the British Museum is from Hermannsburg, Central Australia (H. J. Hillier). Type in author's collection.

Among described species of *Molochtus* the present one may be readily identified by the small bidentate supra-ocular crests. Another, undescribed, species in my collection has similar crests, but is a much smaller insect, and differs in other respects. One of the female specimens from Cue in my collection shows whitish squames forming feeble maculae, on the sides and on the apical declivity, and also present on the legs.

A female collected by Capt. S. A. White at Fincke River, MacDonnell Ranges, perhaps represents a variety of this species. It is smaller (18 × 7 mm.), with even more obliterate elytral sculpture; the rostrum also is more shallowly excavate, and has a narrow, impressed, median line. It agrees fairly well with a male in my own collection from the Ashburton River, Western Australia, but more specimens are necessary to decide whether the form is a subspecific one or merely due to individual variation.

CUBICORRHYNCHUS CURVIPES, n. sp.

♂. In general appearance close to *C. maculatus*, Macl. Black; densely clothed with dark-greyish squames, the prothorax with three or four whitish spots, and the elytra obscurely maculate with white; the apical portion of the femora and the tibiae with dense white clothing; setae light coloured.

Rostrum gently concave, the sides hardly raised; with rather coarse punctures; separated from the head, above, by a distinct, impressed, transverse line, not reaching to the sides. Head flattened in front, with scattered, umbilicate granules, strigose between; the upper part of the head finely transversely strigulose; supra-ocular crests rather short but distinct, projecting almost at right angles to the surface. *Prothorax* (3 × 3·5 mm.) with distinct subapical transverse impression, and a rather deeply-impressed median line, deepest in front of middle, but not reaching apex or base; lateral margins with about five obtuse dentations, the two anterior the larger, also with a small one in front of subapical impression; disc moderately closely set with small, round, slightly depressed, umbilicate, setigerous granules; sides with granules distinct above, obsolescent towards coxae. *Elytra* (7 × 4·5 mm.) feebly convex on disc, strongly declivous posteriorly; base with small granules at the ends of the first, third, and fifth interstices; punctures small, regular; intrastrial granules not traceable; interstices little raised, each with a row of small granules, obsolete anteriorly, becoming distinct towards the sides and posteriorly; lateral interstices not granulate. *Below*, feebly depressed over basal ventral segment; subglabrous, with small, scattered, setigerous punctures; apical segment with punctures closer together, and rather coarser, especially towards apex. Posterior *tibiae* moderately long, strongly curved forwards towards apex, the apical end very slightly thickened, the inner-surface set with small granules; the anterior tibiae also strongly curved, though less so than the posterior; the intermediate pair feebly curved.

♀. Similar to male; convex beneath, the apical segment with finer punctures, though closer than on the other segments; the tibiae less strongly curved than in the male. *Dim.*—Male, female, 10 × 4·5 mm.

Hab.—Western Australia: Geraldton (W. D. Dodd and H. W. Brown).

At first sight the tibiae appear to be evenly curved throughout, but the basal portion is almost straight, the curvature occurring in the apical half. The serrate prothorax would associate this species with *C. crenicollis*, Waterh., from which the tibial curvature, *inter alia*, will separate it. The anterior femora are contiguous, which, in addition to many other features, will separate it from *C. bohemanni* and *C. occultus*. *C. maculatus* and its allies may be readily distinguished by their non-serrate prothorax and different tibial structure.

CUBICORRHYNCHUS STRIGICOLLIS, n. sp.

♂. Of average size and appearance; prothorax rotundate, with widely separate granules, strigose between. Black; clothing dark-grey, squamose; setae light.

Rostrum feebly concave above, the lateral margins little raised; the upper-surface somewhat rugose. Head flattened in front, separated from rostrum by a transverse impression; rather closely and finely longitudinally and obliquely strigose, with a few indistinct granules amongst the strigæ; the back of the head very finely strigulose; supra-ocular crests small, almost upright. Scape moderately long, rather thin. *Prothorax* (3·5 × 4·5 mm.) strongly rounded on the sides;

with marked subapical constriction; median line not impressed, but very finely carinate; an obscure indefinite impression present at each side of disc; disc with small, widely separate granules, the derm between finely strigose, the central strigae longitudinal, the more lateral ones running transversely inwards and obliquely downwards and inwards from the sides; sides non-strigose, with a few granules above. *Elytra* (7 × 5 mm.) gently convex above, strongly declivous towards apex; puncto-striate, the punctures small and regular; the median interstices flattened, without granules, the more lateral interstices each with a row of closely-set granules, more evident towards the sides and posteriorly; lateral interstices not granulate. *Beneath* with scattered punctures, much closer, semiconfluent and coarser on the apical segment. Anterior *tibiae* slight, curved towards the apex, the under-surface gently sinuate: posterior tibiae not curved, the under-surface distinctly, though not greatly, thickened in the middle; the intermediate tibiae feebly sinuate on under-surface; all with small granules along the under-surface, but most marked at the thickening on the posterior tibiae.

♀. Differs from the male in the somewhat less strongly-rounded prothorax, in the more convex under-surface, and in the posterior tibiae being practically straight and hardly thickened on the under-surface. *Dim.*—Male, 12 × 5 mm.; female, 10 × 4·5 mm.

Hab.—Victoria: Nathalia, Tallarook; South Australia: Lucindale, Naracoorte, Murray Bridge. Type in author's collection.

Most of the specimens before me are labelled "Victoria" without locality; probably it has a wide range in the western portions of that State. A specimen from Oodnadatta differs in having the head non-strigose; I do not think it is distinct. The species may be differentiated from all other known ones, with the exception of the two following, by the strigose prothorax. Of these *C. quadraticollis* is a much smaller species with much less strongly-rounded prothorax; while *C. substrigosus*, besides being smaller, has somewhat different granulation of the prothorax and lighter tibiae not noticeably thickened beneath. Mr. Sloane previously considered this species to be *C. sterilis*, Pasc., but Mr. Blair states, after comparison of my specimens with Pascoe's types, that it is not that species.

Specimens sent to me as *C. maculatus*, Macl., var. *brevipes*, Lea, by Mr. Lea himself, belong to this species; but the specimens in Mr. Lea's collection do not. I may add that unless the prothorax is more or less abraded the sculpture cannot readily be distinguished. Normally the species is densely clothed, and very similar in appearance and clothing to *C. maculatus*, Macl.

CUBICORRHYNCHUS QUADRATICOLLIS, n. sp.

♂. Size small; prothorax subquadrate, finely strigose, with scattered granules. Black; rather densely clothed with obscure brownish squames: setae light coloured.

Rostrum and head much as in *C. strigicollis*, the granules on the head more distinct: the supra-ocular crests slightly larger and more sloping. *Prothorax* (2·5 x 3 mm.) subquadrate, rather feebly rounded on sides, the lateral basal angles subangulate, not widely rounded; the sublateral impressions more definite, when viewed from some directions, appearing to indent the lateral margins; median line not impressed or carinate; disc finely and closely strigose, more evidently so than in *C. strigicollis*, the strigae running downwards and inwards from the anterior margin; with fine, widely-separated granules among the strigae; sides finely strigose, with scattered granules above and in front. *Elytra* (6 x 4·5 mm.) more ovate than in *C. strigicollis;* the median interstices with fine granules, rather irregularly arranged and more or less widely separate, on the third interstice showing a tendency to form two incomplete rows; the more lateral interstices with granules more closely set, forming more or less continous rows; lateral interstices non-granulate. *Under-surface* as in *C. strigicollis*. Posterior *tibiae* short, thickened and granulate on the under-surface, about the middle, feebly incurved.

♀. Rather more robust than the male; prothorax similar, but with lateral notch somewhat more conspicuous; under-surface convex, with scattered yellowish setae, posterior tibiae very little thickened, almost straight. *Dim.*—Male, 9·5 x 4·5 mm.; female, 11 x 5·5 mm.

Hab.—South Australia: Nairne, Fowler Bay, Mount Compass, Mount Lofty. Type in South Australian Museum.

Closely allied to both the preceding and the following species, but I think distinct from both; the differences are noted under those species.

CUBICORRHYNCHUS SUBSTRIGOSUS, n. sp.

♂. Small, elongate-ovate. Black; densely clothed (fresh specimens), with light-brownish squames: setae light coloured.

Rostrum short, feebly concave above, separated from head by a narrow impressed line; definite punctures not traceable. Head closely, rather strongly strigose, the strigae running upwards in the centre, obliquely outwards towards the sides; supra-ocular crests moderately large, acute, projecting backwards and slightly outwards. *Prothorax* (3 × 4 mm.) moderately rounded on the sides, basal angles rounded; moderately closely set with flattened, setigerous granules; the derm between the granules somewhat obscurely strigose, the central strigae running parallel to the median line, the more lateral ones running transversely and obliquely; the regions of the anterior and posterior lateral angles without traceable strigae; sides granulate above, obsoletely strigose below and behind. *Elytra* (7 × 4·75 mm.) ovate, convex, strongly declivous posteriorly; puncto-striate, the punctures small, open, indefinitely separated from each other; interstices hardly granulate, a few indistinct granules alone distinguishable, these somewhat more evident towards the sides and on the declivity; sides with interstices non-granulate. *Beneath*, depressed over the metasternum and first ventral segment; moderately closely set with rather small punctures, the apical segment rather densely clothed with yellow setae. Anterior *coxae* contiguous; anterior and intermediate tibiae slightly curved, the anterior the more so; posterior tibiae almost straight, feebly incurved.

♀. Differs in the prothorax being less strigose, the strigae being only traceable with difficulty, in the convex abdomen, and in the posterior tibiae straight. *Dim.*—Male, 10 × 4·75 mm.; female, 10 × 5 mm.

Hab.—South Australia: Mount Lofty Ranges, Coorong; others labelled "Australia, old collection." Type in South Australian Museum.

Close to *C. quadraticollis*, but I think distinct. The strigae are less distinct on the prothorax, and the granules more numerous and more distinct. In both these respects the series shows a good deal of variation, but the longer and more slender posterior tibiae will always separate from *C. quadraticollis*.

Some specimens, from Mount Lofty Ranges, have the prothoracic granules much more distinct, and possibly represent a different species. For the present I prefer to regard them as a variety of *C. substrigosus*.

CUBICORRHYNCHUS AUREOMACULATUS, n. sp.

♂. Size moderately large; prothorax dentate at sides; elytral interstices granulate. Black; upper-surface with minute brownish squames, conspicuously maculate with larger metallic coppery-golden and white squames; under-surface with fine hair-like setae; basal two-thirds of femora scantily clad with white squames, apical third and tibiae with dense white squames interspersed with golden; setae light-brown.

Rostrum separated from head by a distinct impression; upper-margins convex in profile; upper-surface lightly concave, with a median, triangular, laevigate area, extending on to head. Head convex, flattened in front, with two small, separated granules, on upper portion of front; supra-ocular crests strong, projecting upwards and slightly outwards. *Prothorax* (4 × 4·75 mm.) dentate at sides; disc almost flat, with strong subapical constriction; median line barely traceable in places; the lateral margin with three moderately large dentations anterior to middle, and a number of smaller granules, posterior to middle; anterior margin with closely-set granules, posterior margin also granulate; centre of disc with moderately large, rounded, setigerous granules, moderately closely set, leaving a submarginal area extending almost all round disc, free or comparatively free from granules; sides granulate above. *Elytra* (7·5 × 5·5 mm.) flattened on disc, strongly declivous posteriorly; puncto-striate; the interstices with evident, rather large granules, somewhat irregular on the central interstices, closer and more regular on the more lateral ones; sides with the seventh interstice granulate, the others non-granulate. *Under-surface* rather feebly concave over the metasternum and first abdominal segment; subglabrous, with scattered setigerous punctures, the fifth segment with punctures closer and rather coarser at the apex. Anterior *coxae* contiguous; anterior and posterior tibiae evenly and moderately curved, intermediate tibiae feebly curved, all with small, but evident granules on the under-surface.

♀. Differs in the more convex, nitid ventral surface, the punctures being apparently completely obsolete, except on the apical segment, where they are large and shallow, and in the straight posterior tibiae. *Dim.*—Male, 13 × 5·5 mm.; female, 14 × 6 mm.

Hab.—Western Australia: Cue (H. W. Brown), Onslow (C. French); North-western Australia.

The golden maculae are irregularly distributed on the elytra, the white occur in association with the golden; on the prothorax the golden squames clothe the submarginal area, the white are limited to a small spot on each side at the middle of the lateral margin. Apart from the following species, I know of no described species closely allied to the present one. *C. curvipes* has much more strongly curved tibiae; *C. crenicollis* is a smaller insect, and differs in many ways. The species appears to have a wide distribution. The Onslow specimens, perhaps, represent a variety, as the prothorax is more evenly granulate all over; I do not regard it as specifically distinct.

CUBICORRHYNCHUS RECTIPES, n. sp.

♂. Size comparatively large; in general appearance close to *C. aureomaculatus*. Black; densely, almost uniformly clothed with squames of a coppery-golden colour; setae light-yellow; legs densely clothed with creamy squames.

Rostrum much as in *C. aureomaculatus*. Head with the supra-ocular crests stronger, and projecting slightly forwards as well as upwards. *Prothorax* (4 x 4·5 mm.) apparently somewhat less transverse; the subapical constriction wider, less regular, the lateral margins more strongly and irregularly dentate; the anterior margin distinctly sinuate in the middle; the posterior margin without granules, except the two central basal ones, which are slightly larger than in *C. aureomaculatus;* disc with granules larger, arranged after the same plan. *Elytra* (9 x 6 mm.) more obovate, feebly convex above; interstices with the granules slightly, but distinctly larger, somewhat variable in size; sides and under-surface as in *C. aureomaculatus*, except that the apical punctures are somewhat coarser. Anterior *coxae* contiguous; anterior tibiae rather feebly curved; posterior tibiae straight; granules on under-surface of tibiae fine, obscured by clothing.

♀. Resembles male; clothing dense, variable, coppery-gold, variegated with darker brown and silvery-white; legs thickly clothed with whitish and coppery scales. Beneath convex, nitid, the intermediate segments each with a transverse row of shallow, rather wide, but almost obsolete punctures; apical segment with shallow punctures at apex, with a conspicuous creamy patch of squames, with coppery reflections, on either side; the other segments very feebly maculate at sides. *Dim.*—Male, 15 x 6 mm.; female, 14 x 6 mm.

Hab.—Western Australia: Cue (H. W. Brown). Type in author's collection.

The scales clothing this species are, particularly on the female, most beautiful when seen with a lens. The clothing of the female is variable, but in all specimens the coppery-metallic scales predominate. Many of the specimens show no silvery scales on the prothorax and elytra; in the female type, however, these are present along the middle and sides of the pronotum, and are scattered in irregular maculae on the elytra. The rostrum and anterior portion of the head are always clothed, except in the middle, with white or creamy squames, the posterior portion of the head being clothed with coppery-golden squames. Though closely allied to *C. aureomaculatus*, this species is, I think, distinct. Apart from the clothing, and slight differences in the comparative sizes of the supra-orbital crests and of the granules, the male of *C. rectipes* may be readily distinguished by the straight posterior tibiae. Mr. Brown informs me that *C. aureomaculatus* is common about Cue, in damp localities; whereas *C. rectipes* is rare, and only found on red sandy soil about 12 miles from Cue.

ACHERRES LATUS, n. sp.

Close to *A. mamillatus*, Pasc., but larger and wider. Black; with scanty yellowish clothing in depressions.

Rostrum and head as in *A. mamillatus*, but rostral crests more prominent. *Prothorax* (2·5 x 2·5 mm.) comparatively narrow, subparallel on sides; strongly convex anteroposteriorly, and from side to side; with a deep median longitudinal impression, and irregularly bi-impressed near apex; set with moderately large granules, about the same size as in *A. mamillatus*, each with an umbilicate puncture at apex. *Elytra* (6·5 x 5·5 mm.) obovate, widest across infra-humeral tubercles, thence narrowing rather rapidly to base, and more gradually to apex; base about as wide as prothorax, gently emarginate, humeri moderately prominent; disc flattened above, moderately declivous towards sides, and strongly declivous posteriorly; with rows of moderately large, open, foveiform punctures, the intervening ridges not granulate; first and second interstices with a single row of low granules, each with a large umbiliform puncture; fourth with a few similar granules, anterior to middle; third and fifth each with a row of tuberculiform elevations, on the third, small, hardly elevated at base, merely indicated by the punctures, becoming larger posteriorly, the last three definitely tuberculiform, each with several open punctures, arranged in a cluster, the apical tubercle situated on the edge of the declivity; fifth with a row of eight or nine, the basal ones small but evident, the apical four larger, spiniform, a small spinule present on declivity, the basal elevations with several punctures, the apical ones with a single puncture only; an infra-humeral tubercle present, situated on seventh interstice, low, rounded, irregularly punctate; lateral interstices not granulate. *Beneath* as in *A. mamillatus*. *Dim.*—10 x 5·5 mm.

Hab.—Western Australia: Cue, Lake Austin (H. W. Brown). Type in South Australian Museum.

I am doubtful of the sex of the type, but think it is probably a male; four specimens are before me, but except for some difference in size I cannot indicate any sexual distinctions. The species is close to *A. mamillatus*, and perhaps should be regarded as a variety only. Compared with specimens of *A. mamillatus* from Geraldton, the present species differs in its larger size, more deeply channelled prothorax, and broader elytra with larger punctures, larger and more definitely punctate granules, and smaller tubercles.

ACHERRES PILOSUS, n. sp.

Small, elongate-ovate. Black; moderately densely covered with minute brownish squames; midline of head and prothorax with a narrow, cinereous vitta, a similar, interrupted vitta along upper edge, and a less definite one along lower edge of the sides of the elytra; beneath maculate with cinereous in middle of metasternum and abdominal segments, and at sides of the two basal segments; setae long and conspicuous.

Head and rostrum as in *A. mamillatus*, but rostral crests longer, broader, more flattened out above. *Prothorax* (2 × 2 mm.) subcylindrical, convex antero-posteriorly, and from side to side; median line deeply impressed; closely set with moderately large, conical granules, each bearing a long seta. *Elytra* (6 × 4 mm.) strongly and evenly rounded on the sides; base gently emarginate, humeri slightly produced; seriate punctures open, foveiform, regular; interstices granulate, sutural granules small, barely traceable, elsewhere small but larger and evident, rounded above, conical posteriorly and laterally, each with a long seta arising from a deep pucture; granules arranged in single series, generally duplicated or triplicated on the third interstice, and occasionally elsewhere; set close together, but farther apart on the more lateral interstices; sides with interstices more obsoletely granulate. *Beneath* with scattered setigerous punctures. *Dim.*—9 × 4 mm.

Hab.—Western Australia: Cue (H. W. Brown). Type in author's collection.

Differs from all previously described species in having the elytra granulate, not tuberculate. The differences between this species and *A. granulatus* are noted under the latter. I think the type is probably a male, but there seems to be little sexual difference in this genus.

ACHERRES GRANULATUS, n. sp.

Very similar in general appearance to *A. pilosus.* Black; elytra with scattered, yellow maculae; setae short, dark.

Rostral crests similar to those in *A. pilosus*, but slightly shorter, and more flattened out; antennal scape somewhat shorter, and much more incrassate at apex than in *A. pilosus*. *Prothorax* (2·5 × 2·5 mm.) similar to *A. pilosus*, but with mesial line much less strongly impressed. *Elytra* (6 × 5 mm.) in shape as in *A. pilosus*, but more or less depressed along the suture; punctures shallower, more open, less regular, and often communicating across the interstices; granules larger, umbilicate, quite definite on the sutural interstice, on the other interstices set rather farther apart than in *A. pilosus*, and generally in single series, larger, conical posteriorly and laterally. *Dim.*—8·5 × 5 mm.

Hab.—Australia (Blackburn's collection); South Australia: Tarcoola (H. Hacker). Type in South Australian Museum.

Founded on two specimens, probably males, without locality labels, from Blackburn's collection. A third specimen is in Mr. Lea's collection from Tarcoola. The species is closely allied to *A. pilosus*, but the differences noted above, especially those in the scape and elytral granules, appear to me sufficient to warrant their separation. A specimen in the Museum collection seems to me to belong to this species. The size is larger and the elytra are, relatively to the prothorax, much longer than in the type, and there are slight differences in the elytral sculpture. The specimen is from Central Australia, and measures 11 × 6 mm.

AMORPHORHINUS MURICEUS, n. sp.

Small, elongate-ovate. Black; densely clothed with brown subpubescence, variegated with creamy on the elytra; the light clothing forming a broad basal transverse band, a longitudinal patch on the suture at the apex, slightly touching the posterior tubercles and irregularly clothing the sides; sides of sternal and abdominal segments and the legs with light clothing punctate with black, ventral segments feebly maculate in the centre, knees black.

Rostrum short, wide, upper-surface slightly depressed in centre, rather coarsely punctured on the ridges; the external margins curved over the scrobes, depressed at base, the internal ridges nodulose, not very prominent. Head broad, front hardly concave, obsoletely longitudinally ridged, with a central median impression; supra-ocular crests broad, projecting outwards and slightly upwards. *Prothorax* (2 × 3 mm.) with the sides tuberculate-angulate in the middle; ocular lobes feeble; with an irregular depression on each side of apex, and well-defined median line, deepest posteriorly; closely set with moderately large, somewhat mamilliform granules; sides granulate. *Elytra* (5·5 × 4 mm.) widened on the sides posteriorly, rather strongly narrowed to apex; base strongly emarginate; humeri strongly advanced, cristiform, slightly inturned; punctures obscured by clothing; intrastrial granules rather prominent; suture granulate about middle; third interstice slightly produced forwards at base, with small granules, becoming larger posteriorly, the last four or five definitely tuberculiform, the second last the largest, tubercles ending at commencement of declivity; fifth interstice with a row of tubercles extending from humeral crests, which are outwardly serrate, posteriorly and somewhat outwardly, the basal tubercles small and granuliform, the last four or five stronger and definitely tuberculiform; sides with a moderately strong infra-humeral spine. *Ventral segments* flat. *Legs* simple. *Dim.*—9·5 x 4 mm.

Hab.—Western Australia: South Perth, Mundaring (H. M. Giles), Gingin (H. J. Carter), Beverley (South Australian Museum). Type in author's collection.

Closely allied to *A. polyacanthus*, Pasc., under which name it appears in most Australian collections. A specimen was sent to Mr. Blair, who states that it is labelled "*A. muriceus*, Pasc.," in the British Museum. I cannot, however, find any evidence of this name ever having been published. Mr. Blair kindly sent the type of *A. polyacanthus* for examination. Among other differences *A. polyacanthus* has the elytral tubercles much larger and more spiniform. It is possible that the two may be extreme forms of one species, but I do not think so. Too much stress should not be laid on differences of tuberculation, but in this case the difference is decided, and is supported by several minor differences. I think also that more than one species are included under the allied species, *A. australis*; the form in the Museum collection, however, appears to be typical.

MELANEGIS HALMATURINA, n. sp.

Small, elongate, subangulate at the sides posteriorly, much produced apically. Black; rather sparsely covered with minute dull-golden, subsquamose clothing; the middle of the ventral segments and the legs with golden subsetose pubescence.

Rostrum moderately long and narrow; the upper-surface deeply grooved along the middle; a strongly elevated ridge along each side of median sulcus, more elevated and strongly convex in profile posteriorly; a faint groove along the outer side of the posterior portion, probably indicating the separation between the internal and external ridges. Scrobes curved, wide posteriorly, touching eyes. Head partly concealed by the prothorax, small, convex. Eyes flat, elongate-obovate, slightly compressed antero-posteriorly. Scape short, moderately incrassate externally. *Prothorax* (1·75 x 1·75 mm.) little widened, evenly rounded on sides, apical margin slightly produced over the head; ocular lobes moderately distinct; disc with a deep median longitudinal impression, and a more irregular one towards each side; the derm between the furrows raised into a strong ridge on each side, the lateral margins also somewhat raised; ridges with moderately large, closely-set granules, one or two granules also present about the middle of the sublateral furrows; sides granulate. *Elytra* (5 x 3 mm.) about as wide as prothorax at base, thence gradually but strongly widened to behind middle, then strongly narrowed to apex, the widest part forming an obtuse angle on each side, the apex much produced; base deeply emarginate, the humeri strongly produced, the third interstices less strongly, but evidently, produced; disc with punctures obscured, with numerous fine granules irregularly arranged, partly intrastrial granules, partly granules belonging to the third and fifth interstices; with two transverse rows, each consisting of two nodulose elevations, the inner in each row situated the more posteriorly, the first row about the middle, the second across the edge of the declivity and forming the lateral angle; sides with rows of rather large punctures, the interstices with a few feeble granules. *Beneath*, flattened on the apical segments, slightly convex on the two basal ones, with a few scattered punctures. *Legs* simple; tarsi short, spongiose on each side of median furrow. *Dim.*—9 x 3 mm.

Hab.—South Australia: Kangaroo Island (F. R. Zietz). Type in South Australian Museum.

I believe the specimen described to be a male, but can distinguish no sex characters in the short series before me. The nodulose elevations on the elytra are somewhat flattened above, and are situated primarily on the third and fifth interstices, but extend over and involve the adjacent ones; the more posterior row is the larger.

I am not at all sure that I have placed this interesting species in the correct genus, but as in general appearance and sculpture it approaches closest to *Melanegis stygia*, I am content for the present to leave it in that genus.

BRACHYMYCTERUS, n. gen.

Short, relatively broad. *Rostrum* short, wide, not excavate, the upper-surface with a deep, longitudinal, median impression. Scrobes curved, reaching eye. Scape short, widely ampliate and incrassate at extremity. Head convex. *Prothorax* rounded on sides, widest in front of middle, apex feebly rounded above; ocular lobes absent; granulate. *Elytra* wide, evenly rounded on sides, strongly declivous posteriorly; base emarginate, with the first, third, and fifth interstices projecting anteriorly; seriate punctate, interstices granulate. *Tarsi* short, broad.

In general appearance not unlike a small species of *Bubaris*, and with a similar scape, the present genus differs in the absence of the ocular lobes. The propectus appears to be slightly excavate, and, on this character, the species would fall, in Pascoe's table of the *Euomides*, beside *Amorphorhinus*. Moreover, Mr. Blair informs me that specimens were placed in Pascoe's collection at the end of that genus. The absence of the supra-ocular crests, *inter alia*, removes it, however, from *Amorphorhinus*.

BRACHYMYCTERUS AURITUS, n. sp.

Small, ovate. Black; densely clothed with cinereous and brownish depressed subpubescence, the lighter colour predominating in fresh specimens, the brown forming maculae, interspersed with metallic reddish-golden pubescence, this predominating along the median line.

Rostrum short, wide, not excavate; the upper-surface coarsely punctate, the median line deeply impressed, not differentiated into internal and external ridges. Head convex, a very feeble transverse impression present at the base of the rostrum, but not distinctly separating it from the head. *Prothorax* (1·75 x 2 mm.) wide, broadest in front of middle, slightly narrowed to apex, more strongly narrowed to base; mesial and subapical impressions distinct; closely set with small but prominent granules, subconical towards the sides. *Elytra* (4·5 x 3 mm.) wide, gently rounded on sides, more strongly rounded to base and apex; base gently emarginate, the first, third, and fifth interstices projecting anteriorly; with regular rows of elongate punctures; interstices closely set with small granules, obscured by the clothing, more evident posteriorly. *Beneath* gently concave over the base of abdomen, the metasternum and first abdominal segment coarsely punctate. *Dim.*—6·5 x 3 mm.

Hab.—Western Australia: Cue (H. W. Brown). Type in author's collection.

The clothing varies somewhat in different specimens, in some the light clothing predominating, in others the darker. The metallic colour is apparent only in certain lights. In the type, which I think is probably a male, there is absolutely no trace of internal rostral ridges, and the head appears to run into the rostrum without interruption: in another specimen, however, there appear, when viewed from behind, to be two very feeble elevations at the base of the rostrum; these probably represent the internal ridges. This species adds another to the list of novelties discovered by Mr. Brown in Western Australia.

CUCULLOTHORAX, n. gen.

Rostrum moderately long, separated from the head by a distinct transverse sulcus; under-surface comparatively narrow, composed of two parallel ridges, separated by a median linear impression; side widely ampliate; scrobes moderately curved, ending not far from eye. Head strongly convex, partially concealed by prothorax; eyes rotundate, set well forward. Antennae moderately long; scape moderately incrassate, passing eye, but not reaching prothorax; funicle six-jointed; club obovate. *Prothorax* strongly produced into a cowl-like median lobe, enclosing and partly concealing the head; ocular lobes present, small; disc of pronotum passing into sides without definite demarcation. *Elytra* narrow, slightly widened posteriorly; posterior declivity almost perpendicular; with three rows of tubercles on each side of back. *Under-surface* sloping posteriorly and dorsally from metasternum to apex of second segment, thence practically flat to apex; prosternum not apparently excavate; metasternum moderately short. *Legs* moderately long, simple; anterior tarsal joints short; posterior moderately long.

The above genus is proposed for a most extraordinary looking weevil. I think I am correct in assigning it to the *Amycterides*, although I have seen it in Sydney collections placed among the *Aterpides*. Although, in general facies, unlike any Amycterid known to me, critical examination has failed to reveal any character definitely excluding it from that subfamily. The mouth parts I have not been able to dissect out, but as far as I can judge on external examination, they do not differ from the Amycterid type. The rostral structure is not dissimilar from other Euomid genera. The six-jointed funicle is typical of the *Amycterides*, although *Aterpus* has also a six-jointed funicle. The short metasternum without visible episterna is also characteristic. The tarsi are like those of many other Amycterid genera. The dissimilarity of the genus from other Amycterid genera arises from the shape of the prothorax, and the setting of the elytral tubercles. In regard to the prothorax, the extension is not more extraordinary than, though very different from, that of *Dialeptopus*, to which genus, indeed, *Cucullothorax* seems most nearly allied. The elytral tubercles are set on the back, in three rows, placed closely together. I believe that these rows probably represent the first, third, and fifth interstices, the intermediate ones having been crowded out and obliterated. In other Amycterid genera it is difficult to trace the intermediate interstices. I might add that Mr. A. M. Lea agrees with me in allocating this genus to the *Amycterides*.

CUCULLOTHORAX HORRIDUS, n. sp.

Small, elongate. Black; subnitid, elytral tubercles diluted with red. Setae small, black.

Head with rather large, somewhat obsolete, punctures. Rostrum rather coarsely punctate along dorsal ridges and on sides; not excavate above, with a deep median linear sulcus, dividing the surface into two parallel ridges. Eyes small, round; their anterior margin almost impinging on base of rostrum. Antennae with second funicular joint longer than the first. *Prothorax* (3·5 × 3 mm.) almost oval as viewed from above, convex; as viewed from side, strongly produced upwards and forwards to apex, then turning downwards to form a large hood- or cowl-shaped median lobe enclosing head, the cavity for the head looking downwards and forwards; closely set with rather strong, rounded, setigerous granules, the depressions between the granules forming, on the sides, a foveate reticulum, most marked near coxae. *Elytra* (6 × 3·25 mm.) narrow, gradually widened from base to beyond middle, greatest width not wider than prothorax; apex strongly rounded, flanged by a thickened margin on either side, with a small but distinct median emargination; base with four tuberculiform projections extending anteriorly; each elytron with three rows of strong subconical tubercles above; the rows closely placed, the depressions of the striae hardly, if at all, traceable; the tubercles fairly closely set in the rows, their apices obsoletely multipunctate; the tubercles larger in the more external rows, and in all the rows increasing in size posteriorly; sides with three rows of depressed, closely set, tubercles, the intervals more definitely puncto-striate. *Beneath* with moderately large, round punctures on coxae, sterna, and the two basal ventral segments, fewer and smaller on the other segments; fifth segment not excavate. *Legs* moderately long: anterior coxae contiguous: femora rather strongly curved; tibiae simple. *Dim.*—10 × 3·25 mm.

Hab.—Western Australia: Mount Barker (A. M. Lea), Warren River (W. D. Dodd). Type in South Australian Museum.

I think the type is probably a male, but have not ventured to dissect it to make certain. The specimen from Warren River differs somewhat in having a transverse, scar-like impression near the basal third of the prothorax, apically to which the projection of the median lobe suddenly rises. The elytral tubercles are of a much more pronounced red colour, and the rostral punctures are somewhat coarser. I do not think it is specifically distinct, as the scar of the prothorax appears to me unnatural, and to some extent the insect is therefore a monstrosity. If, however, further specimens should be found to bear this peculiarity in the prothorax, it will be necessary to specifically separate it.

SYNONYMIC NOTES ON A RECENT CATALOGUE OF CICADIDAE IN THE SOUTH AUSTRALIAN MUSEUM.

By HOWARD ASHTON.

(Communicated by A. M. Lea.)

[Read April 8, 1915.]

Amongst the species described in my recent Catalogue of the Cicadidae of the South Australian Museum,(1) are several from Cue, Western Australia, collected by H. W. Brown. In respect to some of these, I find I have been forestalled by Mr. W. L. Distant in the Magazine of Natural History (xii., 1913). The following are the synonyms:—

ABRICTA NOCTUA, Dist., Mag. Nat. Hist., xii., 1913, p. 487.

Abricta rufonigra, Ashton, Proc. Roy. Soc., S.A., xxxviii., 1914, p. 349, pl. xvii., figs. 6, 6*a*, 6*b*.

KOBONGA FROGGATTI, Dist., Mag. Nat. Hist., xii., 1913, p. 490.

Kobonga castanea, Ashton, Proc. Roy. Soc., S.A., xxxviii., 1914, p. 351, p. xvii., figs. 5, 5*a*.

MELAMPSALTA CUENSIS, Dist., Mag. Nat. Hist., xii., 1913, p. 489.

Melampsalta hermannsburgensis, Dist., Ashton, Proc. Roy. Soc., S.A., xxxviii., 1914, p. 354 *(nec. Dist.)*.

ERRATUM.

Ashton, Proc. Roy. Soc., S.A., xxxviii., 1914, p. 354, for M. SUBGLUSA read M. SUBGULOSA.

---

(1) *Ante*, 1914, pp. 345-358.

AN INSECT-CATCHING GRASS

(*Cenchrus australis*, R. Br.).

By Arthur M. Lea, F.E.S., Museum Entomologist.

[*Contribution from the South Australian Museum.*]

[Read April 8, 1915.]

Plate IX.

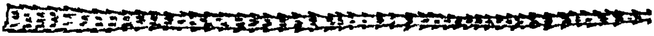
In 1892 when on the Tweed River in New South Wales I saw a large and powerful beetle, *Lamprima aurata*, struggling on the seed-head of a grass, apparently without power to escape. It was caught by a hind leg. The grass was growing close to a small watercourse and in rather deep shade; on looking around many other specimens, mostly flies and small *Hymenoptera*, were seen caught by the same kind of grass.

In 1912 I again came across the grass at Tolga Junction near Cairns in Queensland, but there it was growing in the open, at the sides of roads and tracks. In such situations it grows, in rather thick clumps, to a height of about 2 feet, the heads ranging from 5 to 7 inches in length, and being thickly covered with dark (almost black) burr-like objects, these being the seed-coverings. The burrs often catch in horses' manes and tails, in the hair of dogs and wool of sheep, and mat these together, as other burrs do.

At Tolga Junction many insects were caught by the grass, in particular thousands of a destructive species of ladybird, *Epilachna 28 punctata*, and of a soldier-beetle, *Telephorus mastersi*; a moth measuring 2 inches across the expanded wings was caught, and several fairly large grasshoppers. Many of the specimens were dead and more or less in fragments, but many were alive and doing their best to escape. It was not uncommon to see from two to ten insects on one head, and sometimes one insect would be attached to two heads. Fragments of the largest Australian tenebrionid, *Chartopteryx imperialis* (a bulky beetle measuring over an inch in length), were seen on one head.

Most of the insects were caught by the hind portion of the body or by the legs, very few by the head. The insects appear to have been crossing in a casual way when the burrs caught and detained them; but no doubt many of them were attracted by the sight of those already trapped, and went either to mate with or to devour them; but once an insect got a leg or any portion of its body in the fringe around the seed it was doomed. Watching a clump of grass it was quite common to see an insect walk casually over a head, and suddenly commence to struggle when caught; not one was seen to escape after being caught.

The catching of the insects appears to be purely mechanical, and of no use whatever to the grass, whose heads have an average of about 80 burrs, each of which is surrounded by a fringe of prickly hairs, averaging about 50. On examining a hair under the microscope it is seen to be thickly studded with minute spines directed backwards; the spines are semi-transparent, and look like minute and exceedingly sharp triangles of glass. There appears to be an average of at least 500 to each hair, or a total of 2,000,000 (80 x 50 x 500) to the average head of grass.



PRICKLY HAIR OF GRASS (GREATLY MAGNIFIED).

Some of the Tolga specimens were sent to Mr. J. H. Maiden (Government Botanist of New South Wales), who wrote that the grass was "*Cenchrus australis*, and I have known of it as an insect-catching grass for a number of years, but do not know how the information first came to me. I think you would be quite justified in drawing attention to the matter in a scientific journal."

I have therefore thought it desirable to bring the matter under the notice of the Royal Society of South Australia, as I have never seen any reference to it in any publication, and Mr. Turner did not refer to its insect-catching habits when dealing with the species in his monograph of the Australian grasses.(1)

EXPLANATION OF PLATE IX.

Heads of grass with trapped insects (from photograph by Edgar R. Waite).

---

(1) Agri. Gaz., N.S.W., vol. iv., p. 83.

ADDITIONS TO THE FLORA OF SOUTH AUSTRALIA.

No. 8.

By J. M. BLACK.

[Read May 13, 1915.]

PLATE X.

POTAMOGETONACEAE.—*Pectinella.* The inspection of further specimens leads me to believe that what I had classed (Trans. Roy. Soc., S.A., xxxvii., 4) as two forms of *P. antarctica* are really two well-marked species. The distinction is as follows:—

Foliis brevibus (laminâ 12-35 mm. longâ, vaginâ 8-10 mm. longâ), pedunculis brevissimis, floribus femineis circulo bracteolarum cinctis, styli ramo extimo bifido. . . . *P. antarctica.*

Foliis longioribus (laminâ 40-70 mm. longâ, vaginâ 15-20 mm. longâ), pedunculis conspicuis, floribus femineis ebracteolatis, styli ramo extimo indiviso. . . . **P. Griffithii,** sp. n.

As regards pl. i. of vol. xxxvii., figs. 2 and 10 show the female and male flowers of *P. Griffithii;* figs. 3, 4, 5, and 6 show the female flower of *P. antarctica,* but in No. 3 the peduncle is made too long. Fig. 10 shows the anthers of *P. Griffithii.* In November, 1913, Mr. H. H. D. Griffith (after whom the new species is called) found at Henley Beach the male and young female flower of *P. antarctica;* both are almost sessile, whereas even in the very young female flower of *P. Griffithii* the peduncle is twice as long as the ovaries. Owing to the difference in length of the leaf and of the sheathing-base the two species are distinguishable at a glance, whether fresh or dried. Labillardière's drawing shows that his *Ruppia antarctica* was our *P. antarctica,* and the same remark applies to Gaudichaud's description and figure of the male flower. The outermost style-branch of *P. antarctica* is again divided into two branches, and this species flowers a couple of months earlier than the other.

GRAMINEAE.—*Sporobolus virginicus,* Kunth., var. *pallidus,* Benth. This slender form, very different from the maritime type in appearance, has been gathered near the River Murray in South Australia (exact locality unknown) by S. A. White and H. H. D. Griffith.

CHENOPODIACEAE.—*Bassia inchoata,* J. M. Black (see Trans. Roy. Soc., S.A., xxxviii., 462). Professor Ewart suggests that this new Central Australian species would be better placed under *Threlkeldia*. Certainly if *Bassia salsuginosa*, F. v. M., be retained in *Threlkeldia*, which was Mueller's second choice (see Fragm., vii., 12), then *B. inchoata* must also be placed in that genus. It seems a more practical arrangement to restrict *Bassia* to the spinous species, and I therefore propose to rename *B. inchoata* as *Threlkeldia obliqua*.

AMARANTACEAE.—*Trichinium Whitei*, J. M. Black (see Trans. Roy. Soc., S.A., xxxviii., 464).

CARYOPHYLLACEAE.—*Herniaria hirsuta*, L. Woolshed Flat, near Quorn (November, 1914, Miss J. Mills). Replies have not yet been received as regards specimens submitted to European botanists, so that there is a possibility of error in a genus where the specific distinctions are so slight. An exactly similar specimen, gathered near Wallaroo in November, 1880, is in the Tate Herbarium, placed under *Chenopodium cristatum*. *H. hirsuta* is a Mediterranean and Central European plant, and appears from the foregoing to have been established for some time in South Australia, but is probably localized and rare. The same may be true of *H. incana*, Lam., which was found in the eighties near Blanchetown on the Murray and at Aroona Water, in the Far North, and was recorded by Mueller and Tate as indigenous. Evidently, however, there was plenty of time for its introduction from Europe during half a century of settlement. (Since the above was written, the determination of *H. hirsuta* has been confirmed by the authorities at Kew and at the *Muséum d'histoire naturelle*, Paris.)

LEGUMINOSAE.—In the Flora Australiensis, ii., 177, Bentham states that the anthers of *Goodia* are "all versatile, alternately smaller," and this description is repeated in all the botanical works dealing with the genus which I have seen. The fact is, that the anthers of *Goodia* (like those of *Bossiaea* and *Platylobium*) are all uniform and versatile (dorsifixed), while the filaments are alternately long and short in the bud, but become almost equal in length when the flower opens. In *Templetonia* and *Hovea* not only are the filaments alternately long and short, but the long filaments bear long basifixed anthers and the short filaments bear short dorsifixed anthers. In these two genera also the filaments tend to become equal in the open flower. In the bud of *Crotalaria* five of the filaments are long and broad, bearing long, basifixed anthers, while the five alternate filaments are short and slender, bearing short, dorsifixed anthers; in the expanded flower the position is reversed, for the slender filaments have grown until the short anthers far surpass the long ones, and so keep pace with the elongated style. The place of attachment in the dorsifixed anthers varies somewhat. Thus in *Crotalaria* the small anthers are lobed at base and the filament is inserted on the back of the anther and close to its base. In *Goodia* the anther is orbicular and entire, and the insertion is higher up, nearly in the middle of the back. None of these anthers are versatile in the sense in which that word is applied to the anthers of many liliaceous plants and grasses (pl. x.).

Pultenaea cymbifolia, *sp. nova. (tab. x.). Fruticulus ramosus, ramulis foliisque novellis incanis, foliis parvis (3-4 mm. longis) confertis decussatis scabris mucronulatis infra valde convexis margine revolutis, stipulis conspicuis patentibus, floribus luteis paucis terminalibus subsessilibus, bracteolis lato-lanceolatis ad basin calycis insertis, calyce albo-pubescente 8 mm. longo, lobis 2 superioribus magnis oblique obovatis mucronatis lobos inferiores lanceolato-subulatos multo superantibus, petalis calyce paulo longioribus, vexilli laminâ duplo latiore quam longâ infra bidenticulatâ, ovario villoso.* Between Kingscote and Cassini, K.I., flowering May, 1914 (H. W. Andrew). Section *Euchilus*, and near *P. rotundifolia*, Benth., and *P. calycina*, Benth., but differs from both in the convex mucronate leaves, the larger stipules, etc.

THYMELAEACEAE.—**Pimelea continua,** *sp. nova. (tab. x.). Herba erecta ramosa appresse puberula, foliis alternis linearibus, bracteis foliis similibus paucis caducis, spicâ juniore capituliformi multiflorâ, rhachi fructiferâ ad circiter 15 mm. elongatâ continuâ densâ pilosâ, perianthii tubo villosulo circumscisso 3 mm. longo, epicarpio membranaceo endocarpio striato-punctulato.* Sent from Ketchowla (north-east of Hallett) to the Department of Agriculture in January, 1911, by a correspondent who desired to know whether the plant was poisonous. Only the upper part was received. Belongs to the subsection *Choristachys*, and is near *P. simplex* and *P. sericostachya*, but differs from the first in the head lengthening into a fruiting spike and from the latter in the dense and compact character of the spike and the smaller flowers.

MYOPORACEAE.—*Eremophila neglecta*, J. M. Black. See Trans. Roy. Soc., S.A., xxxviii., 469; also note on the similarity of this species to *E. viscida*, Endl., in "Botany" of Captain White's expedition to the Musgrave and Everard Ranges.

COMPOSITAE.—*Senecio odoratus*, Hornem., var. *obtusifolius*. This maritime variety, rare at Port Elliot, has been found growing at Robe (Miss C. D. Black). *Griffithia helipteroides*, J. M. Black. This name should be deleted and replaced by the prior one of *Helipterum oppositifolium*, S. Moore, in Journ. Bot., ann. 1897, p. 165. Moore's specimens came from Coolgardie, Western Australia, and mine from the Gawler Ranges, South Australia.

DESCRIPTION OF PLATE X.

Pultenaea cymbifolia. n. sp. 1, lower face of leaf; 2, standard; 3, calyx spread open (outside view); 4, pistil.

Pimelea continua, n. sp. 5, perianth; 6, pistil; 7, perianth spread open (inner view); 8, fruit; 9, endocarp after removal of epicarp; 10, seed; 11, embryo.

Stamens of *Leguminosae*. 12, stamens of *Goodia lotifolia*, Salisb.; 13, dorsifixed anther of *Goodia;* 14, stamens of *Templetonia egena*, Benth. (from bud); 15, the same (from open flower); 16, stamens of *Crotalaria dissitiflora*, Benth. (from bud); 18, the same (from open flower): 17, dorsifixed anther of *Crotalaria*.

ON TWO NEW SPECIES OF LEUCOPOGON.

By EDWIN CHEEL, Botanical Assistant, National Herbarium, Sydney.

(Communicated by J. H. Maiden, Honorary Fellow).

[Read May 13, 1915.]

In May, 1911, Dr. J. Burton Cleland made a collection of about fifty-seven species of plants in the neighbourhood of Coonalpyn, Ninety-mile Desert, South Australia, which apparently has been imperfectly explored, and the two following species of plants included therein appear to be undescribed:—

LEUCOPOGON CLELANDI, n. sp.

Frutex parvus erectus 5-6 poll. altus, ramis gracilibus implicatis paulo pubescentibus, foliis parvis obovatis vel ovatis, leviter basi cordatis sessilibus, 1½ lin. longis convexis supra glabris subtus minute pubescentibus striatisque apice mucronatis, floribus solitariis in axillis foliorum pedunculo leviter recurvo circiter 1½ lin. longo, bracteis minutis, bracteolis 2 longis ½-⅔ lin. acutis, sepalis 1½-2 lin. longis acuminatis, corolla extra tuba hirsuto sepales aequante, lobis acuminatis leviter recurvis circiter ½ lin. Ovario dense hirsuto 5 squamis linearibus, styla corollam paene aequante filiforme.

An erect, small shrub about 5 to 6 inches high, with somewhat intricate slender branches, which are more or less pubescent. Leaves small, obovate to ovate, slightly cordate at the base, sessile, about 1½ lines long, convex, glabrous above, minutely pubescent and striate beneath, with a distinct mucro at the apex. Flowers solitary in the axil of the leaves on a slightly recurved peduncle about 1½ lines long. Bracts very minute; bracteoles two, about one-third as long as the sepals, sharply pointed; sepals 1½ to 2 lines long, acuminate. Corolla slightly hairy outside the tube, equal in length with the sepals, with acuminate, slightly-reflexed lobes about ½ line long. Ovarium densely hirsute, with five linear scales; style about as long as the corolla; filiforme.

The species has affinities with *L. cordifolius*, Lindl., but may be distinguished by the much smaller leaves and distinct floral characters.

The species has been named in honour of Dr. J. Burton Cleland, Principal Microbiologist, Department of Public

Health, Sydney, New South Wales, who has made several valuable collections of Australian plants, and presented them to the National Herbarium, Sydney.

LEUCOPOGON INTERMEDIUS, n. sp.

Ramis gracillimis diffusisque, ramulis minute pubescentibus, foliis glabris 2½-3½ lin. paulo recurvis oblongo-ellipticis et mucronatis, floribus paene sessilibus solitariis vel raro per paria in axillis foliorum, bracteis minutis, bracteolis tribus vel pluribus acutis maxima longa paene ½ lin., sepalis 1½ lin. longis acuminatis, corolla tuba gracile sepales aequante, lobis tubam aequantibus, primum inflatis elongatis acuminatis demum recurvis detegentibus magnas fuscas antheras, ovario glabro cincto disco undulato anulato, stilo paene corollam aequante, stigmate leviter capitato.

Habit of plant not given, but the branches of the specimens examined are slender and of a straggling nature; the branchlets minutely pubescent. Leaves glabrous, 2½ to 3½ lines long, slightly recurved, oblong-elliptical, tapering into a pungent point. Flowers almost sessile, solitary (or rarely in pairs) in the axil of the leaves. Bracts minute; bracteoles 3 or more, acute, the largest barely more than ½ line long. Sepals 1½ lines long, acuminate. Corolla tube slender, about as long as the sepals, the lobes about as long as the tube, at first inflated, and tapering at the apex into an acute point, afterwards recurving and exposing the rather large dark-coloured anthers. Ovarium glabrous, surrounded by a wavy annular disc; style nearly as long as the corolla with a slightly capitate stigma.

This has close affinities with *L. hirtellus*, F. v. M., and *L. Fraseri*, A. Cunn., and is intermediate between the two species, but may be distinguished from the former by the leaves and branchlets being glabrous, and from the latter in the leaves being less acuminate and smooth margin, whereas those of *L. Fraseri* have the margin minutely serrulate.

I desire to express my thanks to Miss Frances Graham for kind assistance.

ON THE OCCURRENCE IN SOUTH AUSTRALIA OF TWO PREVIOUSLY UNRECORDED FERNS *(FILICES).*

By EDWIN ASHBY, M.B.O.U.

[Read May 13, 1915.]

SITUATION.

During the first week in January last (1915) I had an opportunity to inspect the cliffs on the River Murray, in the Hundred of Younghusband, commencing about half a mile above the so-called township of Younghusband, on the left bank of the river. The cliffs are nearly half a mile in length and, I should judge, about 100 feet in height, and almost vertical. They face a little to the south of east. The rock is of a porous nature, the moisture from the river rising by capillary attraction for several feet above the level of the water. The lower portion of the cliffs has been worn away in places into shallow shelves, and here and there softer layers of rock have weathered away for some distance back from the river front, forming shallow caves. The ferns are growing more or less continuously for almost the whole length of the cliffs, but rarely higher than a few feet above water level. They are growing luxuriantly in the seams of softer material, overhung by horizontal layers of harder rock. In some cases I should judge that the fronds of *Pteris tremula* were fully 2 feet long. I was only able to land in one or two places and identify two species of ferns, both I believe previously unrecorded from this State; it is quite possible that further investigations may reveal others.

DESCRIPTION.

I had no difficulty in recognizing one of the ferns as *Pteris tremula*, R. Br., a fern familiar to all who visit the damp tree-fern gullies of Victoria, New South Wales, and elsewhere under similar conditions.

The other species was evidently an *Aspidium*, and I concluded that as Professor Ralph Tate's "Handbook of the Flora of Extratropical South Australia" gives the Murray Cliffs as a locality for *Aspidium molle*, Swartz, that these specimens must be referable to that species. I think it possible that that species has been included in our flora through misidentification, but without reference to the original specimens this cannot be determined.

On sending specimens of the two ferns to the Assistant Curator of the Melbourne Botanic Gardens, Mr. F. Pitcher, he writes confirming my identification of the one as *Pteris tremula*, R. Br.; the other he determines, on reference to their Herbarium, as *Aspidium unitum*, var. *propinquum*, F. M. Bailey, and comments on it as follows:—"The other specimen appears to be that of *Aspidium unitum*, var. *propinquum*, F. M. By. It is much more deeply lobed and has more acute dentations than is the case in *A. molle*. It corresponds to our specimen under that name, although, as far as I can ascertain, *A. unitum*, is only recorded from Western Australia, New South Wales, Queensland, and North Australia. The variety *propinquum* was so named by F. M. Bailey, and is found in Queensland."

PECULIAR CONDITIONS.

The circumstances under which these two ferns occur are very remarkable. The climatic conditions which obtain at the locality (20 miles above Mannum) are of the dry arid character common to districts with a similar low rainfall. The two conditions that make it possible for these two ferns (whose true *habitat* is in a moist and more or less continuously wet climate) to live in such a locality are moisture derived by capillary attraction from the river and the aspect, shaded as it is during the greater part of the day from the sun's rays. It is just possible that the evaporation of the water of the river may give a moisture to the atmosphere immediately surrounding the ferns, and thus, to some extent, mitigate the effects of the dry, scorching winds so common in that locality.

ORIGIN.

There are only two possible hypotheses, as far as I can see, to account for their occurrence in this locality. Either they are survivals, the sole remaining representatives of the time when the Murray Valley was blest with an abundant rainfall, or the spores of these ferns were carried by the agency of the river and retained their vitality throughout their long journey from the mountains where the River Murray, or the River Darling, has its source in far-off New South Wales or Queensland.

The identification of one of the specimens with a variety that has only been recorded from Queensland throws considerable light on the subject, and suggests that the source from which the spores originally came was in the mountains of Queensland, where the river Barwon, or other tributary of the Darling, has its rise. If this surmise is correct the spores must have travelled some 2,200 miles.

NOTES ON AUSTRALIAN EUMOLPIDES (COLEOPTERA CHRYSOMELIDAE), WITH DESCRIPTIONS OF NEW SPECIES.

By ARTHUR M. LEA, F.E.S., Museum Entomologist.

[*Contribution from the South Australian Museum.*]

[Read April 8, 1915.]

PLATES V. TO VIII.

The *Eumolpides* are represented by an abundance of species in most parts of Australia, and many of the species are extremely abundant in specimens, the young foliage of *Eucalypti* being often considerably injured by them.(1) The species are frequently brilliantly metallic, and often cause young trees to appear to be studded with gems; nevertheless, the Australian members of the subfamily have been greatly neglected, probably on account of the difficulties that must have been experienced by almost every worker in trying to get some ideas as to the generic and super-generic features.

Baly in 1860 wrote of "The chaotic state of the *Eumolpidae*, the crowd of species which remain unnamed and unarranged in our collections, and the want of generic landmarks. . . . ." At the present time (1915) the subfamily appears to be in a still more chaotic state. The fact seems to be that in the subfamily very few genera have strongly-marked distinguishing features, and this fact should be taken into consideration when the subfamily is again considered as a whole. Thus in checking former descriptions I have examined not only the species of the genus to which a description would apparently refer, but all others of the subfamily(2); and this I believe to be essential in many groups of Australian *Coleoptera*, if it is desired to avoid very extensive synonymy. The absence of constant generic features renders it probable that exception will be taken to many of my generic references; more particularly in *Cleptor*, *Colaspoides*, *Agetinus*, and *Geloptera*; but it is practically certain that almost every author will attach different values to various combinations of features. In *Edusa*, for instance, whilst the pubescent species are seldom aberrant, the glabrous ones might have been referred to various other genera, *glabra* might quite as well have been referred to *Cleptor*, and some others to *Geloptera* or *Colaspoides*. I have, in fact, generically separated several species of *Cleptor* and *Edusa*, that at first glance would appear to belong to but one genus.(3)

---

(1) With the exception of *Geloptera tuberculata* I know of no species that is at all seriously destructive to cultivated plants.

(2) Except *Agetinella minuta* and *Platycolaspis australis*; but of these I have seen authenticated specimens.

With few exceptions the Australian genera are either now, or once were, monotypic, and very few are sharply defined. To the original species of many genera additions frequently appear to have been made at random, characters regarded by some authors as important beng regarded by others as unimportant. There is, therefore, great difficulty in apportioning many species to their correct genera, and it is very desirable in most cases to make sure of the original species, if this can possibly be done. Unfortunately for Australian workers, the typical species is often ex-Australian.

The main features relied upon for dividing the subfamily into genera, and groups of genera, are the front margin of the prosternal episternum (highly unsatisfactory), the presence or otherwise of a notch near the outer apex of each of the four hind tibiae (a very useful feature, although the notches are sometimes very feeble), the presence or otherwise of rugosities on the elytra caused by the punctures becoming transversely confluent (a feature that is sometimes variable within the limits of a species, and is almost always variable in a large genus), the upper-surface glabrous or clothed, the claws,(4) the sides of the prothorax,(5) and the femoral dentition.(6)

So much importance has been attached to the front margin of the prosternal episternum by various authors that it is necessary to give special consideration to same. A sketch of the prosternum of *Rhyparida dimidiata* has, therefore, been made, and the letters on same will serve as an index to the names of the parts as regarded by Leconte and followed by

---

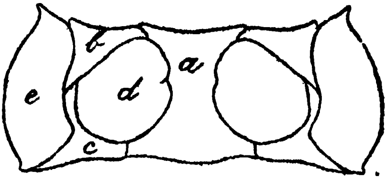
(3) See note at *Cleptor bigener*.

(4) Simple appendiculate or bifid. I doubt if they are ever truly simple; even in *Spilopyra* each claw (pl. vii., fig. 101) has a slight basal swelling. The change from an appendiculate claw to a bifid one is frequently so gradual that it is difficult to define a dividing line, so that (as previously pointed out by Mr. Blackburn) the decision as to the nature of a claw must often be an arbitrary one.

(5) Evenly rounded in middle, dentate or subdentate. Also highly unsatisfactory.

(6) The presence or otherwise of teeth on the femora (usually on the front pair only) would appear at first to be very satisfactory characters, especially as the teeth, when present, are often of large size; but in many species it is difficult to decide as to whether the femora are only angulate or truly dentate, and the teeth are sometimes so small that they could be easily overlooked.

Sharp (with some slight alterations). The parts are as follows: —



Rhyparida dimidiata.

a. Medisternum (in the subfamily the coxae are so large that for all practical purposes this may be regarded as an intercoxal process). *b*. Episternum. *c*. Epimeron. *d*. Coxal cavity. *e*. Inflexed side of pronotum. But as in the subfamily there is a sharply-defined border between the upper- and lower-surfaces of the prothorax, I prefer to call this the flank of the prosternum.(7)

It is, therefore, part *b* to which so much importance is attached. Baly (8) referred to this as the "antero-lateral process (or plate) of the ante-pectus," and he puts beyond all question the part he so named by giving six figures on plate i., in which at *b* this part is specially indicated. He also stated that "this process varies much in shape, and might often, I think, be made available in determining the limits of the genera in this difficult group of insects."

Subsequently (9) he refers to it as "the anterior episternum. This part was formerly named by me the antero-lateral process of the ante-pectus." And apparently he then attached much less importance to it than at first.

Chapuis, however, attached primary importance to it, and founded the main divisions of the subfamily upon its front edge being convex or concave.(10) In this he was followed by Lefevre.(11) They were, no doubt, deceived as to its importance by the examination of but few species of even the larger genera; as where large series of species are available it is quite evident that its front edge is variable. The lower-surface of each side of the head immediately in front of the process and behind the eye usually has a transverse or oblique elevation, frequently hairy, and often concealed unless the head is quite free from the body. When the head is resting on the breast (the normal condition of unset specimens) the episternum and elevation are so closely approximated that it is difficult to separate them, more especially on such species as have the under-surface clothed. It appears to me quite possible that, in some cases, owing to the clothing, the front of the elevation on the head has been regarded as the front of the episternum, and consequently the same has been noted as convex, when it was really concave. Moreover, the clothing frequently obscures the lateral sutures of the episternum, and to see these at all clearly, even when the derm is glabrous, the legs must be forced aside.

---

(7) Although seldom of generic use its punctures and striae are frequently of use in distinguishing allied species, but some manipulation of the front legs is usually necessary to see these clearly.

(8) Jour. of Ent., i., p. 25.

(9) *L.c.*, ii., p. 144.

(10) Gen. Coleopt., x., 1874.

(11) Eumolpidarum Catalogus, 1885.

A certain amount of ambiguity also seems inseparable from the use of a word signifying the elevation of surface when applied to the edge of same. Strictly speaking, when a flat margin is produced forwards with a rounded outline it should be called rounded, not convex; conversely, when produced backwards with an incurved outline, it should be called incurved (in some cases emarginate), not concave. But in *Rhyparida*, some species have the front portion of the episternum perfectly flat, with the margin itself rounded or slightly incurved; on other species the front of it is slightly depressed (concave), or feebly elevated (convex), with the margin similarly rounded or incurved; but on nearly all the species the greater portion of each side of the prosternum is depressed.

In *Edusa* the front margin of the episternum, whilst normally feebly rounded, is sometimes incurved. To strictly apply Chapuis' and Lefevre's definitions, therefore, the species of each of these genera would be distributed between the two main divisions of the subfamily. Moreover, the point of view from which the margin is examined must be taken into consideration. From behind (and owing to the front being frequently partially concealed by the overlapping palpi or base of head this *must* have frequently been the point of view) the front margin may appear to be gently rounded, but the same margin when examined perpendicularly to its middle (the only correct way of seeing its true shape) may appear to be quite straight or even gently incurved; nor is it always sharply defined even when free of clothing; so that on small specimens its use has often to be abandoned.(12) Whatever may be the case in other parts of the world, I have found it quite impossible to rely upon parts of the prosternum to separate Australian genera of the subfamily.

Lefevre's table was a translation (with a few additions) into Latin from Chapuis' table in French. Excluding all groups not recorded as Australian, and transposing some of the lines to bring the table into similar shape to others given herein, it might be done into English as follows:—

---

(12) See also comments under *Colaspoides picticornis*.

A. Prosternal episterna with front margin straight or concave, internal angle never produced forwards.	
a. Claws appendiculate or simple.	
b. Four hind tibiae simple, the middle ones sometimes lightly emarginate towards apex.	
c. Claws simple	*Spilopyritae* (13)
cc. Claws appendiculate.	
d. Prothorax with sides more or less dentate or undulated ...	*Colaspitae* (14)
dd. Prothorax with sides entire, rarely subdentate	*Iphimeitae* (15)
bb. Four hind tibiae strongly emarginate towards apex	*Tomyritae* (16)
aa. Claws bifid.	
e. Head deeply sulcate behind eyes	*Scelodontitae* (17)
ee. Head not so sulcate.	
f. Four hind tibiae strongly emarginate towards apex	*Metachromitae* (18)
ff. Four hind tibiae entire	*Eumolpitae* (19)
AA. Prosternal episterna with front margin convex, internal angle produced forwards, sometimes strongly so.	
B. Elytra towards sides more or less strongly rugose	*Edusitae* (20)
BB. Elytra not so sculptured.	
C. Upper - surface pubescent or squamose	*Myochroitae* (21)
CC. Upper-surface glabrous.	
D. Four hind tibiae emarginate towards outer apex	*Typophoritae* (22)
DD. Four hind tibiae simple, the middle ones rarely subemarginate	*Endocephalitae* (23)

The tibiae are frequently notched, and the notches are of considerable use in distinguishing genera and species. In some genera each of the four hind tibiae (the middle pair often more noticeably than the hind ones) has a notch near the outer apex, bounded behind by a small tooth or swelling (figs. 102-104, 108), and not running on to the general line of the tibia, notches of this character have been, and are here, regarded as of generic importance. Frequently, however, the tibiae near the apex are clothed (at the position of the notches) with some silvery hairs, and in certain lights these cause the tibiae to appear notched; where the apex of the tibia is dilated and the incurved space behind same runs on to the general line (figs. 133 and 135) this has not been considered as a true notch. A notch is frequently at the apex itself, and in such the basal joint (or part of same) of the tarsus can rest; it is usually due to a strong ridge or carina on each side of the upper edge of the tibia, which at the apex project on each side of the notch like flanges. On some species (figs. 128 and 141) also there is a more or less triangular notch at the lower apex (or near same) of the front, or of the four hind ones, or of the hind ones only. The notches in the upper-surface or apex are not confined to one sex, although they are sometimes more pronounced on the males than on the females; but when on the lower-surface of the hind tibiae they are confined to the males.

---

(13) *Spilopyra*.

(14) *Colaspis*, *Agetinus*, *Hypoderes*, *Geloptera*, and *Dermorhytis*.

(15) *Noda*, *Alittus*, and *Terillus*.

(16) *Tomyris*.

(17) *Scelodonta*.

(18) *Rhyparida*.

(19) *Colasposoma*.

(20) *Thaumastomerus*, *Ocnida*, *Edusa*, and *Cleptor*.

(21) *Neocles*.

(22) *Typophorus*, *Eurydemus*, and *Cleorina*.

(23) *Colaspoides*.

The pygidium frequently semi-circularly encroaches on the apical segment of the abdomen, so that this appears to be composed of six segments instead of five; this is usually more noticeable on the males than on the females. Although the greater portion of the pygidium is normally concealed, it is sometimes accidentally uncovered, and on all such specimens its hind part is seen to have a deep median groove.

In a subfamily many of whose species are characterized by great variability of size and colour, it is desirable that structural features, not (or but little) liable to variation, should be fully noted; and it is curious that, almost with the sole exception of the late Rev. T. Blackburn, the strongly-marked sexual features of the abdomen and legs should have been overlooked, and yet these lead to the rapid and certain identification of many species. Unfortunately, with many species such features cannot be noted with specimens set out on cards in the ordinary way, it being necessary to mount them so that both surfaces may be readily examined. In the tables given use has frequently been made of masculine characters; no doubt tables that could be used for both sexes would be more convenient, but so many species are closely allied, and the characters that would have to be used for both sexes are so unsatisfactory, and dependant upon comparative degrees, that it was considered much better to use the frequently highly-characteristic male features. In probably no other subfamily of the *Chrysomelidae* are these so useful in distinguishing the species, although in *Rhyparida* and a few other genera they are not of much use. It is usually also necessary to state the sexes of the specimens described, because the males are frequently green, and the females golden, or brassy, or bronzy, and frequently with several joints of the antennae partly or entirely dark, where on the males only the tip is dark; they frequently also differ in size. The sexes, in fact, are often so dissimilar in appearance that, without the aid of specimens taken *in cop.*, it would be practically impossible to mate them.

The presence of clothing on the upper-surface, or its complete absence, was considered by Chapuis and Lefevre as of more than generic importance: but is sometimes only of specific importance. Specimens also that are normally clothed on the upper-surface sometimes appear to be glabrous through abrasion. In *Edusa,* although most species are more or less densely clothed, several glabrous species have been described. In that genus also the transverse running together of the punctures (also treated as of more than generic importance) is also of only specific importance. In *Rhyparida* one species, quite normal otherwise, has long hair on the upper-surface. On many of the species, otherwise glabrous on the upper-surface, each angle of the prothorax has a rather long hair, but these appear to be so easily abraded, and are often so indistinct, unless specially searched for, that I have usually omitted to mention them, even when noticing their presence on the types.

The majority of the species are metallic, frequently brilliantly so, and as with so many other metallic species, many are extremely variable. On all of them the tips of the mandibles and the eyes are black or blackish, and it was not considered necessary to mention same, even when the species are otherwise entirely pale.

Of the genera recorded in Masters' Catalogue as Australian, *Noda,*(24) *Dermorhytis,*(25) *Eumolphus,*(26) and *Typophorus,*(27) must be expunged, and probably *Eurydemus*(28) as well. In the catalogue, 74 species are noted, to which 70(29) have since been added, bringing the number, after deducting 20 for previously unrecorded synonyms and varieties, to 124.

---

(24) Now *Nodonota,* an American genus; the position of *proxima* is very doubtful, and *tasmanica* is a synonym of *Agetinus subcostatus.*

(25) *D. femoralis* is probably either an *Abirus* or a *Geloptera.*

(26) *E. viridiaeneus* is a *Rhyparida.*

(27) *T. australis* is a *Rhyparida.*

(28) *E. grandis* is probably not Australian.

(29) Including some overlooked species.

To these I am now able to add 228,(30) making the grand total 352—a number that probably does not represent half of the actual total that will eventually be found to occur in Australia.

In addition to the specimens in the Museum (including those of the late Rev. T. Blackburn), the whole of the specimens belonging to Messrs. H. J. Carter, J. C. Goudie, H. H. D. Griffith, Dr. E. W. Ferguson, and myself were examined, and permission was received to retain the types of the new species (even uniques). By the courtesy of Professor Haswell all the specimens belonging to the Macleay Museum were also examined, and a few types have been returned to that institution. Mr. Gilbert J. Arrow, of the British Museum, also sent numerous specimens for examination, but these were received after the main portion of the work was done; some authenticated specimens that he sent were of great assistance, and enabled some synonymy to be confidently noted. Unless expressly stated to the contrary, all the types of the new species remain in the South Australian Museum.

The following additions and previous corrections are necessary to bring the catalogue of the Australian members of the subfamily up to date from the issue of Masters' Catalogue. Fresh corrections are noted under special headings:—

AGETINELLA, Jac., Entomologist, xli., p. 26; MINUTA, p. 27.

AGETINUS AEQUALIS, Blackb., Proc. Linn. Soc., N.S.W., 1888, p. 1478; *l.c.*, 1889, p. 465.

CLEPTOR HAROLDI, Blackb., *Ante*, 1900, p. 168.

COLASPIS PALMERSTONI, Blackb., Proc. Linn. Soc., N.S.W., 1888; p. 1477.

COLASPOIDES XANTHOPUS, Har.-Blackburn, *Ante*, 1900, p. 168, notes as a *Cleptor;* PICIPES, Weise, Die Fauna, S.W. Aus., ii., p. 5; GEMINATA, p. 6.

CUDNELLIA, Blackb., Proc. Linn. Soc., N.S.W., 1889, p. 461; MYSTICA, p. 462.

EDUSA GERMARI, Lef., C. R. Ent. Belge, xxxv., p. cclxix.; CHRYSURA, Germ., Blackb., *Ante*, 1891, p. 143; VARIANS, Blackb., p. 144; DIVERSICOLLIS, p. 144; FROGGATTI, p. 145; SPINICOLLIS, p. 145; DISTINCTA, p. 146; MINOR, p. 146; OENEA, p. 146; PERPLEXA, p. 147; LINEATA, p. 147; LAETA (in error printed LATA), p. 148; BELLA, p. 148; GLAUCA, p. 149; PILIFERA, p. 149; FRATERNA, p. 150; HIRTA, p. 150; PAVENS, p. 151; MEYRICKI, p. 151; INERMIS, p. 151; GLABRA, p. 152; SINGULARIS, p. 152; ANGUSTULA, *l.c.*, 1900, p. 66.

---

(30) Many others were examined, but being of doubtful distinctness, or represented by damaged or female specimens, they were passed over without comment.

EDUSOIDES, Blackb., Proc. Linn. Soc., N.S.W., 1889, p. 477; PULCHER, p. 477.

EURYDEMUS INSIGNIS, Chp., Atlas, pl. cxxii., fig. 4.

NEOCLES INNOCUUS, Blackb., *Ante*, 1900, p. 169.

NODONOTA, Lef., Cat. Eumolp., 1885, p. 166. Proposed as a substitute for *Noda*. Although two Australian species have been referred to *Noda*, Lefevre (Cat., p. 18) regards them as not belonging to the genus. In his catalogue three species are recorded as Australian, but of these *pumila* in error, its locality being originally noted as Rio Janeiro.

PLATYCOLASPIS, Jac., Entomologist, xli., p. 27; AUSTRALIS, p. 28.

RHEMBASTICHUS, Weise, Die Fauna, S.W. Aus., ii., p. 4; VARIABILIS, p. 4.

RHINOBOLUS, Blackb., Proc. Linn. Soc., N.S.W., 1889, p. 463; NITIDUS, p. 464.

RHYPARIDA VIRIDIAENEUS, Blanch. (formerly *Eumolphus*), Clark, Journ. of Ent., ii., p. 252; SIMPLEX, Clark, *l.c.*, p. 254; LIMBATIPENNIS, Jac., Stett. Ent. Zeit., 1895, p. 56; BREVILINEATA, Jac., Ann. Soc. Ent. Belge, 1898, p. 357; TRIMACULATA, p. 358; PALLIDA, p. 359; BLACKBURNI, p. 360; MOROSA, Jac., Blackb., Proc. Linn. Soc., N.S.W., 1888, p. 1486; AENEOTINCTA, Blackb., *l.c.*, p. 1479; MEDIOPICTA, p. 1480; AMPLICOLLIS, p. 1481; PUNCTULATA, p. 1482; POSTICALIS, p. 1482; PICEITARSIS, p. 1483; UNIFORMIS, p. 1483; HERBACEA, p. 1484; SATELLES, p. 1485; DISCOPUNCTULATA, p. 1486; INTERIORIS, p. 1486; MASTERSI, Blackb., Trans. Roy. Soc., S A., 1892, p. 236.

SCELODONTA, the generic name for SIMONI (No. 6587), was accidentally omitted from the catalogue; var. PALMERSTONI, Blackb., Proc. Linn. Soc., N.S.W., 1888, p. 1479.

SPILOPYRA OLLIFFI, Blackb., *l.c.*, 1891, p. 544, since referred to *Richmondia* of *Chrysomelides*; STIRLINGI, Lea, *Ante*, 1914, p. 344.

TERILLUS MICANS, Blackb., Proc. Linn. Soc., N.S.W., 1888, p. 1475; POLITUS, p. 1476; CARINATUS, p 1476; SUTURALIS, *l.c.*, 1889, p. 461; ROTUNDICOLLIS, Chp., Atlas, pl. cxviii., fig. 4.

TOMYRIS RASA, Blackb., Proc. Linn. Soc., N.S.W., 1889, p. 465; NEGLIGENS, p. 466; OBSCURA, p. 467; LAETA, p. 468; GRACILIS, p. 468; IMPRESSICOLLIS, p. 469; LONGICORNIS, p. 470; AENEA, p. 471; ANTENNATA, p. 472; DIFFICILIS, p. 473; PARADOXA, p. 473; MINOR, p. 475.

Notes on previously named genera have also been made by Blackburn as follows:—EDUSA, THAUMASTOMERUS, and OCNIDA, *Ante*, 1891, p. 140, and 1900, p. 66; CLEPTOR, 1900, p. 167; COLASPOIDES, p. 168; NEOCLES, p, 169; COLASPIS, Proc. Linn. Soc., N.S.W., 1888, p. 1478; and RHYPARIDA, p. 1487.

RHYPARIDA.

This genus is represented by a great many species in Australia, especially in the warmer parts,(31) and many of them are extremely common. Some of them are almost or quite constant in their colours, some have apparently quite fixed colour varieties, and a few are extremely variable; in consequence several have been named more than once. On many species, especially amongst the smaller ones, the sides of the prosternum are conspicuously longitudinally striated from base to apex; but the majority are not striated throughout, although very few species are without remnants of striation about the base. The antennae vary somewhat in length and thickness, but are seldom of use in distinguishing the species, the second and third joints are sometimes of exactly the same length, sometimes the second and sometimes the third is slightly the longer, but in cases where antennal joints are subequal their apparent proportions are so liable to alteration from the point of view that I have purposely avoided using them. The scutellum also appears to be of very little use in distinguishing species. With the exception of the species of *Tomyris*, *Cleorina*, and *Scelodonta*, I have referred to the genus all the members of the subfamily now before me, whose four hind tibiae are notched near apex, and have excluded all those whose tibiae are not so notched. The projection behind each notch, and the notches themselves, differ slightly amongst the various species, but the degrees are so slight that they cannot be usefully employed in specific descriptions. All the species here referred to the genus also have regular single rows of elytral punctures; the punctures frequently diminish in size, or may even vanish posteriorly, but they are never confused or geminate in arrangement.

Following is a table of species known to me:—

---

(31) It appears to be absent from Tasmania.

A. Sides of prosternum striated from base to apex.
a. Upper-surface hairy ... ... *pilosa*
aa. Upper-surface glabrous.
b. Prothorax (in addition to others) with coarse, irregularly scattered, punctures about base and sides ... ... *polymorpha*
bb. Prothorax without such punctures.
c. Prothorax impunctate ... ... *subangulata*
cc. Prothorax with more or less distinct punctures.
d. Eyes very large, close together, and no longitudinal impression between them *megalops*
dd. Eyes smaller or, if large, with a distinct longitudinal impression between them.
e. Prothorax and elytra black throughout.
f. Punctures in striae strong and distinct to apex ... ... *crassipes*
ff. Punctures in striae becoming much smaller posteriorly ... ... *ophthalmica*
ee. Prothorax and elytra not black throughout.
g. Large and robust.
h. Elytra pale ... ... *alleni*
hh. Elytra almost entirely black ... ... *vulnerata*
gg. Smaller and usually narrower than in *g*.
i. Each elytron with more than one dark longitudinal mark.
j. Infuscation of fourth interstice short and postmedian ... ... *australis*
jj. Infuscation of fourth continuous from base to near apex ... ... *militaris*
ii. Each elytron at most with one obscure dark longitudinal mark, and usually more or less uniformly coloured.
k. Head impunctate or almost so from clypeal suture to near base.
l. Distance between eyes less than the transverse diameter of an eye ... *ruficeps*
ll. Distance more.
m. Face with a shallow disconnected impression ... ... *bimaculicollis*
mm. Face with a distinct impression connected with clypeal suture *melvillensis*
kk. Head with distinct punctures between clypeus and base.
n. Prothorax scarcely more than half the greatest width of elytra ... *parvicollis*
nn. Prothorax at most one-third less than the greatest width of elytra.

o. Striation of prosternum rather ill-defined in parts ... . *brevis*

oo. Striation conspicuous throughout.

p. Front angles of prothorax armed.

q. Head shagreened as well as punctured ... ... *mayae*

qq. Head with punctures only.

r. Elytra without a large dark lateral mark ... ... *interioris* (?)

rr. Elytra with such ... ... *copei*

pp. Front angles of prothorax unarmed.

s. Upper-surface with a conspicuous greenish gloss ... ... *elliptica*

ss. Upper-surface without such a gloss.

t. Separation of eyes more than the transverse diameter of an eye ... ... *flavipennis*

tt. Separation of eyes much less distant.

u. Sides of elytra parallel-sided for at least half their length *medionigra*

uu. Sides more or less gently rounded even in middle.

v. Eyes moderately distant.

w. Prothorax black ... ... *prosternalis*

ww. Prothorax not black ... ... *platyderes*

vv. Eyes rather close together.

x. Prothoracic punctures scarcely larger towards sides than on disc ... ... *apicipennis*

xx. Prothoracic punctures distinctly larger on sides ... *apicalis*, typical form

AA. Sides of prosternum not striated throughout.

B. Pronotum entirely dark, except that the apex is sometimes obscurely diluted with red.

y. Elytra with at least portion of the base pale.

z. Size large.

a. Dark markings of elytra of a more or less metallic-green ... ... *posticalis*

aa. Dark markings not metallic-green ... ... *dimidiata*, typical form

zz. Size very small.

b. Pronotum impunctate or almost so ... ... *humeralis*, in part

bb. Pronotum with distinct punctures.

c. Prothorax considerably more than twice as wide as long ... ... *ovata*

cc. Prothorax less than twice as wide as long . . .. *variipennis*

Elytra (the sides and apex sometimes excepted) entirely dark.

d. Sides of prosternum with dense and coarse punctures *halticoides*
dd. Sides of prosternum without such punctures.
  e. Size very small.
    f. Pronotum impunctate or almost so ... ... *humeralis*, in part
    ff. Pronotum with conspicuous punctures .. *tropica*, in part
  ee. Size much larger than in *e*.
    g. Pronotum shagreened.
      h. Elytra also shagreened ... *herbacea*, var.
      hh Elytra not shagreened.
        * Prothorax less than twice as as the median length *nigrocyanea*
        ** Prothorax fully twice as wi he median length.
          i. Elytra metallic-green or p *caeruleipennis*
          ii. Elytra brassy ... ... *nitida* (?)
    gg. Pronotum not shagreened.
      Sides of elytra (wholly or in p conspicuously paler than disc.
      k. Apex also conspicuously pal than disc ... ... *flavolatera*
      kk. Apex not conspicuously pa than disc ... ... *fulvolimbata*, typical
[form
      Sides of elytra uniformly colo l with disc (or almost so).
      l. Elytral striae conspicuously ressed at summit of apical slope.
        m. Outlines of elytra continu with those of prothorax ... ... *discopunctulata*
        mm. Outlines not so continu .
          n. Upper-surface conspicuo y metallic ... ... *fulvolimbata*, var.
[*blackburni*
          nn. Upper-surface not met :.
            o. Pronotum with minut distinct punctures ... ... *atra*
            oo. Pronotum with disti punctures ... ... *decipiens*
      ll. Elytral striae not conspicuo impressed at summit of apical slope.
        p. Distance between eyes less an the transverse diameter of an eye ... *punctulata*, dark form
        pp. Distance between eyes m .
          q. Upper-surface at most w a vague bluish gloss.
            * Front angles of proth armed ... ... *dimidiata*, dark form
            ** Front angles unarme ... ... *angusticollis*
          qq. Upper-surface more or s conspicuously metallic.
            r. Pronotum with very s l and indistinct punctures ... ... *uniformis*
            rr. Pronotum with small t sharply defined punctures ... ... *morosa*

BB. Pronotum entirely pale, or pale with dark markin
C. Elytra dull metallic-green or blue .. ... . h ypical form
CC. Elytra not green, or if green not dull.
D. Prothorax with front angles unarmed.
s. Elytral striae and punctures both distinct on apical slope *tropica*, in part
ss. Elytral striae and punctures not both distinct on apical
t. Prothoracic punctures quite unusually coarse ... ... *insulicola*
tt. Prothoracic punctures at most of moderate size.
u. Elytra entirely dark ... ... *seminigra*
uu. Elytra entirely pale.
v. Elytral punctures (except about base) scarcely visible ... ... *vagans*
vv. Elytral punctures fairly distinct posteriorly ... ... *pallidula*
uuu. Elytra pale, but with four black spots ... ... *tetraspilota*
DD. Prothorax with front angles armed.
E. Elytra entirely dark, the margins or extreme base sometimes excepted.
w. Size small.
x. Prothorax impunctate or almost so ... ... *basipennis*
xx. Prothorax with distinct punctures ... ... *semiflava*
ww. Size large.
y. Elytra metallic .. .. *ruficollis*
yy. Elytra not metallic.
z. All striae conspicuously impressed on apical slope ... ... *limbatipennis*, typical [form
zz. Some striae not so impressed ... ... *didyma*, var.
EE. Elytra entirely pale, the suture sometimes excepted.
a. Eyes separated less than the transverse diameter of an eye.
* Prothorax fully twice as wide as long ... ... *punctulata*, typical [form
** Prothorax not much wider than long ... ... *grandis*
aa. Eyes separated more.
b. Clypeus impunctate or almost so ... ... *clypeata*
bb. Clypeus with more or less distinct punctures.
* Elytral margins much wider than usual ... ... *carteri*
** Elytral margins of normal width.
c. Suture black or deeply infuscated throughou
* Prothorax immaculate ... ... *tenuis*
** Prothorax bivittate ... ... *bivitticollis*
cc. Suture not deeply infuscated througho

d. Head with distinct punctures between eyes, as well as on clypeus.
e. Elytral punctures and striae fairly distinct on apical slope ... *commutabilis*
ee. Elytral punctures and striae very feeble there ... ... *dimidiata*, pale form
dd. Head impunctate between eyes, or at most with scarcely visible punctures.
f. Striae and punctures both well defined on apical slope.
g. Prothoracic punctures not very large but sharply defined ... *fuscosuturalis*
gg. Prothoracic punctures very small and ill-defined.
* Prothorax fully twice as wide as long ... ... *alcyone*
** Prothorax much less than twice as wide as long ... ... *rufa*
ff. Striae and punctures, either or both, very feeble on apical slope.
h. Metasternum and tarsi, either or both, black or deeply infuscated *flava*
hh. Metasternum and tarsi not at all, or but feebly infuscated ... *minuscula*
EEE. Elytra with more or less conspicuous markings on disc.
F. Prothorax bimaculate.
i. Black portion of elytra not broken up ... ... *maculicollis*
ii. Black portions of elytra more or less isolated.
j. Elytra with two black blotches separated by a transverse fascia ... *triangulifera*, var.
jj. Elytral markings longitudinal.
k. Fourth interstice with a postmedian isolated spot ... ... *brevilineata*
kk. Fourth without such a spot ... ... *mediovittata*
FF. Prothorax without conspicuous spots.
G. Elytra with a conspicuous, transverse, pale median fascia.
l. Postmedian black portion continued to apex ... ... *mastersi*
ll. Black portion terminated before apex ... ... *triangulifera*
GG. Elytra without a transverse median fascia.
H. Dark part of elytra with a conspicuous greenish gloss ... ... *aeneotincta*
HH. Dark parts without such a gloss.
I. Elytra with some striae not distinctly impressed on apical slope.
m. Elytra with three black spots ... ... *trimaculata*
mm. Elytra with more or less than three ... ... *didyma*, in part
II. Elytra with all striae distinctly impressed on apical slope.
J. Elytra infuscated about scutellum ... ... *amplicollis*
JJ. Elytra not infuscated there.
K. Fourth interstice with an isolated postmedian spot ... ... *limbatipennis*, pale [form
KK. Fourth without such a spot ... ... *mediorufa*

NOTES ON TABLE.

The femoral teeth, when present, are sometimes so extremely feeble, and could so easily be overlooked, that it was not considered desirable to use them in the table. The sexual variation in the eyes also rendered it desirable not to use these where possible. The depths of the prosternal striae, and the diminishing in size posteriorly of the elytral punctures, are very useful features in distinguishing the species, but the gradations in size between them are so fine that they could not be usefully employed for the larger divisions of the table. The claws might have been used, as they are often strikingly different between species apparently almost identical (compare *decipiens* and *atra); but as at the best of times it is often difficult without considerable manipulation to decide even as to whether they are bifid or feebly appendiculate, and as a slight amount of dust or gum readily obscures them, especially on the smaller specimens, it was decided not to use them in the table.

A. On many species, not here included, the prosternum is conspicuously striated at the base, or at the base and apex, but the striae are not traceable throughout. On the present group at least some striae are so traceable, although in a few cases rather indistinctly so.

A. *e*. On *elliptica* and on *prosternalis*, and on even the darkest forms of *apicalis*, the elytra are more or less conspicuously diluted with red posteriorly, so they are not included here.

A. *g*. This species seems rather out of place amongst those with striated prosternum, and the striae there are less distinct than on most species of A, although some of them are traceable throughout.

A. *j*. Counting from the middle and excluding the short basal one. The short vitta on the fourth interstice is sometimes connected with the main longitudinal one, but on such specimens the interstice itself is partly pale towards the base.

A. *kk*. On some species of the genus the base of the head has fairly distinct, or even moderately strong, punctures, but these are usually concealed by the overlapping base of prothorax. The space here referred to may be taken as from the clypeal suture to a line connecting the hind margin of the eyes; on some species of *kk* the punctures are rather small, but they are always sharply defined.

A. *p*. On *flavipennis* each angle, when viewed from below, appears to be armed with a minute tooth, but these are quite invisible from above.

A. *vv*. In the male the separation is considerably less than the transverse diameter of an eye.

B. *ll*. On some of these species the punctures in the striae are fairly distinct at and below the summit of the apical slope, but the striae themselves (except the sutural and marginal ones) are feebly or not at all impressed.

D. To make quite sure of this the prothorax *must* be viewed from below.

DD. To see the armature clearly it is sometimes necessary to examine the under-surface of the prothorax from behind, as the projections are often small, and if the slight constrictions that they are really due to are clogged with dust or grease the projections themselves are scarcely visible. On many species, however, they are quite distinct from above.

E. The apex also is sometimes obscurely diluted with red, but never has conspicuous markings.

EE. A variety of *clypeata* has some infuscate basal spots.

EE. *gg*. On two specimens of *alcyone* the prothoracic punctures are more distinct than on the Darwin specimens.

F. One specimen of *maculicollis* has the prothorax immaculate, but its elytral blotch is as on typical ones. But *brevilineata* and *limbatipennis* vary in each other's direction so much that it is not always easy to decide as to the position of a specimen with immaculate prothorax.

I. Referring to the striae only. On some specimens of *didyma* the punctures are fairly distinct in all the rows.

RHYPARIDA DIDYMA, Fab.

var. *vittata*, Blanch.
var. *fulvoplagiata*, Jac.
var. *mediopicta*, Blackb.

Pl. v., figs. 1-14; pl. vii., fig. 96; pl. viii., figs. 102, 103, 167, and 171.

This is an abundant, widely-distributed, and extremely-variable species. The commonest (and typical) form (fig. 1) in Queensland (but it extends to the North-west as well) has three disconnected spots along the middle of each elytron, the first subbasal and composed, as it were, of three arms (of which the outer one is sometimes almost disconnected), the second median and briefly transverse, the third elongate and subapical. On this form the suture may be partly or entirely black, or but vaguely infuscated posteriorly; the margins are sometimes infuscated towards the apex, and occasionally have a median spot.

An almost equally abundant form (fig. 2) has the median and apical spots conjoined.

A very common form in North-west Australia (but extending to Queensland) has each elytron with an irregular vitta, extending from each shoulder to near the apex (fig. 3); frequently on this form each vitta has an inner projection at the basal third (fig. 4). One specimen near this form has the median vittae joined at the apex, with dark sutural and marginal markings, so that when viewed from behind the tip of the suture appears to be the starting-point of five longitudinal vittae (fig. 5). This specimen agrees well with the description of *vittata*.

On the variety named *mediopicta* (32) the elytra are black, with the extreme base, the basal margins, suture (except posteriorly), and a dilated postmedian space (on the suture), more or less reddish. This is perhaps the least constant of all the forms, and it is abundant in the Northern Territory. Frequently the postmedian blotch is split up into two by the suture being dark throughout.(33) One such specimen has most of the prothorax and a considerable portion of the head infuscated. It, and one other, are the only specimens I have seen with those parts not entirely pale. Frequently the postmedian spot has two lateral extensions on each elytron (fig. 8), and these may become conjoined laterally so as to enclose a black spot (fig. 9). Or the suture may have a fairly wide space at the base pale, and the red rapidly narrowed till it disappears about the middle (fig. 10). This form naturally leads to one in which the elytra at first appear to be entirely dark, but on examination the base and basal half of the sides are seen to be very narrowly reddish (fig. 11).

Most of these forms are represented by an abundance of specimens in the Museum, but in addition there are many other individual variations. One of the most interesting of those appears to have the elytra entirely black, but on examination some parts are seen to be darker than others, these darker parts consisting of spots as on the typical form. Its head and prothorax also are deeply infuscated over most of the surface. Its scutellum, the whole of its under-surface,(34) and the major portion of the legs are black.

RHYPARIDA AUSTRALIS, Boh. (formerly *Typophorus*).

Marsaeus simplex, Clark.

Pl. v., figs. 15-17; pl. viii., fig. 168.

This species was referred by Boheman to *Typophorus*. Lefevre (35) excluded it from that genus, but without assigning it to any other. It is a *Rhyparida*. In colour it is of a more or less dingy testaceous or flavous, deepening to a dull (on some specimens almost a blood) red, and with conspicuous black or infuscate markings. These on the head usually consist of a fascia in front, connected along the middle more or less widely with a rounded, medio-basal spot. On the prothorax there is usually a very large spot on each side, but these are frequently so extended that only the extreme apex and sides are reddish. The scutellum varies from red to black. On each elytron there is a fairly-wide variable vitta near the side, extending from the shoulder to about the apical third or fourth; the suture is usually black or infuscated throughout, but towards the base the black portion is usually rapidly (subtriangularly) dilated, and then just behind the scutellum suddenly truncated, and at its widest part it is frequently joined to the sublateral vitta; on the fourth interstice beyond the middle there is usually a narrow spot, but sometimes it is alogether absent, either through the space there being pale, or, if dark, forming part of the sublateral vitta. Each side is usually narrowly black, with the black part either isolated or joined to the sublateral vitta in one or two places. The sides of the prosternum, except the extreme margins, are striated throughout, but more deeply towards the base than elsewhere, and on some specimens more deeply than on others. On *brevilineata* (some varieties of which approach some varieties of this species) the prosternum is occasionally vaguely striated at the base, but apparently never on the sides or apex.

---

(32) The type (fig. 6) is in the South Australian Museum.

(33) The variety (fig. 7) described by Jacoby as *fulvoplagiata*.

(34) I have seen no other specimens with the scutellum and under-surface black.

(35) Cat., p. 132.

A specimen from Moreton Bay, sent by Mr. Arrow for examination, and as having been compared and agreeing with the type of *simplex*, is simply a fairly dark specimen of *australis;* its prothorax is almost entirely dark, but the elytral markings are of the usual type. In the original description the colours of the prothorax and elytra are not mentioned, apparently being included in the general expression "rufo-niger."

Hab.—Queensland: Bloomfield River, Dalby, Brisbane, Mount Tambourine; New South Wales: Albion Park, Tamworth, Liverpool; Victoria: Alps, Geelong, Ararat.

RHYPARIDA RUFICOLLIS, Clark.
howitti, Baly.
satelles, Blackb.

The elytra of this species vary from brassy-green to purple; with the shoulders and apex occasionally obscurely diluted with red (but apparently never conspicuously reddish). The legs are seldom entirely pale, but usually have the knees, tips of tibiae, and the tarsi black or infuscated. The abdomen is usually infuscated, and frequently has a brassy gloss; the metasternum is also usually infuscated, but is sometimes much paler than the abdomen; rarely the whole under-surface is pale. The species occurs in abundance in the warmer ports of Australia: specimens in the Museum being from Port Curtis (36) and Charters Towers in Queensland, the Northern Territory,(37) and Roebuck Bay in North-western Australia.

RHYPARIDA NITIDA, Clark (?)

Two specimens from North-western Australia (38) possibly belong to this species. One is brassy-purple, with dark under-surface and legs; the other is brassy, with legs obscurely reddish. They have the head and prothorax finely shagreened, and with fine, scattered punctures. The clypeus is indistinctly separated from the face, and has fairly dense and distinct, but not sharply-defined punctures. The elytral punctures are coarse, but beyond the middle rapidly decrease in size.

RHYPARIDA NIGROCYANEA, Clark.

Two specimens, measuring eight mm. or four lines (decidedly above the average for a dark species), and labelled "Interior S.A.," may belong to this species, but they differ from the description in having the legs and antennae partly reddish (although obscurely so), and in the head being not "foveolato," but with a narrowly impressed median line; the clypeus (not mentioned in the original description) has dense and rather strong punctures, the others on the head being very small. The prothorax, whilst not strongly transverse, is distinctly wider across the middle than the median length; but this is also the case with *didyma* (which was given as the type of *Marseus)*, to which *nigrocyanea* was referred, although it was said to be "quadrate or subquadrate," and "subquadrato, non transverso."

Since the above was written, Mr. Arrow sent a specimen of the species for comparison that was compared with the type, and it agrees with these.

RHYPARIDA RUFA, Clark.

A co-type of this specios, sent for examination, is structurally extremely close to *nigrocyanea*, except that the median line on the head is deeper and that the punctures on the clypeus are more numerous; most of its appendages are missing. The colour was given as "stramineo-flavus," but that of the co-type is *now* of a reddish-castaneous, with a distinct greenish gloss.

---

(36) Identified by the late Rev. T. Blackburn as *ruficollis*.

(37) Including the type of *satelles*.

(38) The type was recorded as from New South Wales, but several of the localities, given by the Rev. H. Clark in the paper containing the description of this species, seem to be rather dubious.

RHYPARIDA FULVOLIMBATA, Lef.
var. *blackburni*, Jac.

Pl. v., figs. 18 and 19.

On the typical form of this species the elytra have a fairly wide flavous border, extending from near each shoulder to the apex, but it often terminates before the apex, and sometimes all that is left of it is a small medio-lateral spot. Frequently it is altogether absent, and the form with such elytra has been described by Jacoby as *blackburni*. The tibiae are usually pale, but occasionally are more or less greenish. The prothorax is usually shining, but on an occasional specimen appears to be lightly shagreened. There are specimens in the Museum from Fortescue River, Roebuck Bay, and Port Denison. The type of *fulvolimbata* was described as from Sydney, but probably in error.

RHYPARIDA APICALIS, Jac.

Pl. v., figs. 20 and 21.

The two original specimens of this species differed in the punctures of the head and elytra, in the space between the eyes, and in the colours of the legs and elytra.

Two specimens from Port Denison evidently belong to the species. Each has the sides of the prothorax with dense and fairly coarse punctures having a tendency to become oblong and confluent. Their eyes are large, closer together than usual, and there is a conspicuous longitudinal impression between them. One has the shoulders and apical portion of elytra conspicuously paler than the other parts. The sides of the prosternum are conspicuously longitudinally striated.(39)

Five specimens from Gladstone, and two from Mungar Junction, differ from the preceding ones in having the head quite as dark as the prothorax, the eyes smaller and more distant, the lateral punctures of the prothorax smaller, quite round and not at all confluent (although somewhat denser than on the disc), the shoulders and apex of elytra rather obscurely paler than the other parts, and with fairly distinct punctures about apex (although much smaller than about base). The antennae and legs are of an uniform dingy-brown, somewhat paler on some specimens than on others, but of one colour only.

---

(39) As they are on all the other specimens here considered as belonging to the species. Many of the small species of the genus have the sides of the prosternum similarly striated, but I cannot find that such sculpture has been referred to in any previously described species, although presumably *some* of them must have been so striated.

Three specimens from Mackay are also conspecific. Of these one has the lateral punctures of prothorax more, and the others have them less, conspicuously confluent. The prothorax is of a rather dark-brown, and on two of them is notably darker than the head. The elytra are uniformly reddish-brown, becoming slightly paler posteriorly, but one has a vaguely infuscate spot on each side. One has the under-surface black, one has it somewhat paler, and the other has it still paler.

A specimen from North Queensland is sculptured as those from Gladstone, but has the head of a dark-red, with an obscure median blotch, the elytra with the shoulders and apex flavous and the suture and base obscurely diluted with red, so that an elongated black patch is obscurely isolated on each elytron. The legs and antennae are more or less flavous.

Four specimens from the Fortescue River (North-western Australia) (40) also appear to belong to the species; but have the head with denser punctures, and the median line only moderately impressed; the prothoracic punctures are partially confluent at the sides, but not oblong, and the elytra have about one-third of the apex flavous, the pale portion connected with the base at the sides (except on one specimen). One has an elongated black patch on each elytron, as on the North Queensland specimen.

A specimen from the Behn River is of a rather dingy reddish-brown throughout, except that the legs, antennae, and the lateral and posterior parts of the elytra are somewhat paler. It is rather narrower than the Port Denison ones, and the lateral prothoracic punctures are not confluent.

A specimen from the Fortescue River is still paler (the elytra are flavous throughout, except for a slight deepening of colour towards the base and on the margins). Its head (except for the clypeus) is impunctate, the prothoracic punctures are small and comparatively sparse (even on the sides), and the seriate punctures on the elytra (except for the marginal and sutural rows) are not traceable even to the middle.

Putting some of the extreme forms together (say the last-mentioned one beside the wider, darker, and more coarsely punctured ones from Gladstone), it is rather difficult to believe that they belong to but one species; but there are so many intermediate ones that I am convinced all the specimens here commented upon do so belong. There are specimens from other localities (including Melville Island), and with other slight differences, in the Museum.

---

(40) All the specimens from the North-west are narrower than those from Queensland, but this appears to be of varietal importance only.

RHYPARIDA LIMBATIPENNIS, Jac.

Pl. v., figs. 22-24.

Of this species Jacoby had eight specimens belonging to two forms; but the one (with almost entirely dark elytra) he described as typical is much less abundant than the one with a few spots; this form being very abundant in many parts of Queensland (Rockhampton, Charters Towers, Cairns, Cooktown, Coen River, etc.). He described the antennae and legs as fulvous, but the former are frequently infuscated, except towards the base, and the knees, tip of tibiae, and tarsi are usually infuscated. On the pale form the spots on each elytron vcry in number from one to three.

RHYPARIDA CLYPEATA, Jac.

Three specimens from North Queensland (Blackburn's collection) and Cairns (E. Allen) evidently belong to this species, which is readily distinguished by its entirely pale colour and "the entirely impunctate head and clypeus, which latter is not separated from the face." Two of them (both males) have a feeble longitudinal impression on the head, but on the other (a female) it is more distinct. The female has elytral punctures as in the type, but on the males they appear to be much larger, owing to each being surrounded by a watery-looking ring (41); their actual sizes, however, are much as on the female. Jacoby described the femora as unarmed, but on close examination a very minute tooth (invisible from most directions) may be seen on each, those on the four hind ones nearer the apex than base, and on the others nearer base than apex. At first sight each appears like a speck of dust.

Two other females agree so closely in sculpture (including the femora) with these that it does not appear desirable to regard them as more than slight varieties. They have a few minute punctures on the clypeus, and the base of this is marked off from the head by a feebly-curved bisinuate line.(42) One has a very vague spot on the middle of each elytron near the base; the other has a similar spot, and in addition one on each shoulder, and a vague stripe on each side of the prothorax.

---

(41) Similar rings appear to occur on occasional specimens in many other families of beetles.

(42) On most species of the genus the punctures and basal suture of the clypeus are more or less variable.

RHYPARIDA MOROSA, Jac.

An abundant species from Brisbane to Port Darwin. Specimens usually have a bluish, greenish, or purplish gloss, but sometimes are slightly brassy. On an occasional specimen the elytra are of a different colour to the prothorax and head. From three to five of the basal joints of antennae are pale.

RHYPARIDA TRIMACULATA,(43) Jac.

Pl. vi., figs. 25-27.

This species (the type of which was from Northern Australia) was described as having the antennae black (except for the first five joints) and the under-side and legs nearly black.

There are before me four specimens from Cloncurry which possibly represent a variety of the species, but they have the antennae, under-surface, and legs (except for a feeble infuscation of the knees and parts of the tarsi) no darker than the upper-surface. But as the size (4¾-5¼ mm.) is similar to that of the type (5 mm.), and the sculpture of the head and prothorax, with the conspicuously trimaculate(44) elytra, are in accordance with the description, it would be inadvisable to describe them as new without knowing the typical form.

Since the above was written I have seen (fig. 25) a Macleay Museum specimen (from Port Denison) that agrees with the original description and is quite evidently *trimaculata;* it differs from the Cloncurry ones (in addition to the differently coloured antennae, legs, and under-surface) in being narrower (especially as regards the prothorax), clypeus less conspicuously separated from the face, punctures in the elytral rows almost disappearing posteriorly, and in several minor details. Nevertheless, as it appears possible that the two forms may belong to but one species, I refrain from describing the Cloncurry specimens as belonging to a new one.

RHYPARIDA BREVILINEATA, Jac.

Pl. vi., figs. 28 and 29.

The type of this species was described as having "the suture and two short stripes beyond the middle piceous." This form, however, is rather rare; on the common form the stripe on the fourth(45) interstice is as described, but that on the eighth(45) usually extends to the shoulder, sometimes with a slight interruption before same.(46) The dark sutural marking is seldom continued to the apex, and frequently terminates before the middle; the epipleurae are frequently dark. The scutellum varies in colour. On the prothorax the two dark spots are seldom completely absent, but they vary in size; there is also frequently a median spot as well, and the three are sometimes conjoined; one specimen has a conspicuous black M. On the head there is occasionally a medio-basal spot. On the prosternum the base is usually striated, and the striae may or may not be continued close to the coxae, but they appear never to extend to the apex, and this will distinguish the species from *amplicollis* and *alleni*. The eyes are smaller but more prominent than in *limbatipennis*, and the elytra as a rule are decidedly less convex. The majority of specimens in fact have a peculiarly flattened appearance. The length varies from 4 to 7 mm.

---

(43) In error originally printed *bimaculata.*

(44) On one of the specimens the postmedian spot on each elytron is split up into two longitudinal approximate ones.

(45) The third and seventh according to Jacoby, but he evidently did not count the sutural interstice.

Two specimens from North-western Australia (Blackburn's collection) are unusually small and convex, and with the clypeus more distinctly punctured than usual; the prothorax is infuscated almost throughout, and the elytra with suture infuscated, and the spots so faint as to be practically absent.

Hab.—North-western Australia: King Sound, Fortescue River; Northern Territory; Queensland: Cairns, Kuranda, Charters Towers, Mackay, Rockhampton, Gladstone, Mungar Junction, Brisbane.

RHYPARIDA DIMIDIATA, Baly.

Marsaeus rufoflavus, Clark.

Pl. vi., fig. 30; pl. vii., fig. 97; pl. viii., figs. 104 and 172.

The typical form of this species is the rarest of three quite sharply defined ones, and I have taken them all in company at Tamworth (the third, and the second and third forms, freely mating). On the elytra of all the forms the punctures are of large size close to the base, but they rapidly become much smaller and almost disappear posteriorly. On the two first forms there is usually a vague bluish gloss, that is usually fairly distinct on the apical portion of the elytra, and is seldom altogether absent. The size varies from 4½ to 7½ mm.

On the typical form the prothorax, apical half of elytra (the line of demarcation sharply defined), and most of the under-surface and legs are black or blackish.

---

(46) On many specimens there appears to be a bifurcated humeral stripe, with the outer arm extending to beyond the middle, and the inner one abbreviated at the base, but with the stripe on the fourth interstice representing where it would be if continued.

The second form is entirely black, except that the head, apex of prothorax, parts of under-surface and of antennae are often obscurely diluted with red.

The third (and most abundant) form is of a pale-brown (almost stramineous), with the elytra and base of femora still paler. With age it becomes considerably darker (more or less castaneous). This form comes very close to the description of *rufoflava;* but it has distinct although rather small prothoracic punctures, (47) whereas that species is described as having the prothorax impunctate. Mr. Arrow, however, sent five specimens (three from Moreton Bay) as *rufoflava* after comparison with the type, and they are quite normal specimens of this variety.

Four black specimens, from Brisbane, should perhaps be regarded as belonging to the second form, but they are less convex, the bluish gloss is entirely absent, and the elytral punctures are rather more distinct posteriorly (although much smaller than anteriorly). A specimen from Northern Queensland agrees with these in sculpture of elytra, but has the sides obscurely flavous from base to apex, and the eyes and prothoracic punctures somewhat smaller.

Hab.—New South Wales: Tamworth, Clarence River; Queensland: Brisbane, Mount Tambourine, Mackay, Cairns.

RHYPARIDA GRANDIS, Baly.

Eurydemus insignis, Chp.

A specimen (numbered $\frac{58}{69}$, but without locality label) sent by Mr. Arrow as this species, and agreeing with the original descriptions, is simply a large *Rhyparida* (to which genus it was originally referred), with bifid claws and front-margins of prosternal episterna gently incurved. Baly described the four hind femora as being armed, but the front ones are also armed, although the tooth on each of these is much less distinct than on the others. Baly recorded the species from New Caledonia; Chapuis recorded *E. insignis* as from Australia; Lefevre also recorded it in his catalogue as Australian. Its right to a place in Australian catalogues, however, needs confirmation.

RHYPARIDA BASALIS, Baly.

A variety of this species has been recorded from Queensland, but is not represented in the Museum. Mr. Arrow, however, has sent for examination a specimen of the typical form (from Dorey), and in the table this (except that the apical parts of the elytra are somewhat diluted with red) would be referred to E, and associated with the variety *zz* of *didyma*, with which, however, it has very little connection. In size and (except for the paler prothorax) general appearance it appears close to *melvillensis*, but the flanks of the prosternum are not striated from base to apex as on that species.

---

(47) On some specimens, however, they are smaller than on others, and if such specimens are greasy or dirty the punctures could easily be overlooked.

RHYPARIDA MACULICOLLIS, Baly.

Pl. vi., figs. 31 and 32.

The two conspicuous spots on the prothorax of this species vary considerably in size, and from one of the numerous specimens in the Museum are altogether absent. The legs are occasionally almost entirely pale, but frequently the knees (very rarely the entire femora), tibiae (wholly or in part), and tarsi are black or infuscated. The abdomen is usually paler than the metasternum. The sides (except in front) and base of prosternum are rather faintly but distinctly striated.

RHYPARIDA MASTERSI, Blackb.

Pl. vi., figs. 33 and 34.

Structurally this species is extremely close to *maculicollis*, and the colours are usually exactly alike (the ground colour varies on individuals from a rather dark-straw colour to almost ruby-red), although the markings are strikingly different. Both forms also have the prosternum close to the coxae and about the base with fine striae; more conspicuous on some specimens than on others. The type was described as having unarmed femora, and those of a co-type in the Museum are certainly unarmed; but several specimens coloured exactly the same have the hind femora minutely dentate, the tooth invisible from most directions.

RHYPARIDA INTERIORIS,. Blackb. (?)

The type of *interioris* (now in the British Museum) was the only specimen of the species known to the late Rev. T. Blackburn. There is now before me a specimen from Mount Painter (close to Leigh Creek) that I hesitate to regard as distinct from it, although most of its under-surface and the apical half of the antennae are infuscated (these, however, are common variations). But its eyes are widely separated, whereas they should be closer together than usual. I think it probable, however, that the eyes are sexually variable in size and distance, as they certainly are in several species of which I can be sure of the sexes.

RHYPARIDA UNIFORMIS, Blackb.

The type of this species was described as "cyanea," a specimen somewhat doubtfully considered as a variety as "aenea." But as a matter of fact the brassy form is more abundant than the bluish.(48)

Four small (4½-5 mm.) greenish or purplish-blue specimens from Cairns and Cooktown may represent a variety, besides in size they differ in being somewhat narrower, with the median impression on the head deeper, but the clypeus less distinctly separated from the face. Their femora are black with a bluish gloss, and three have the tibiae rather deeply infuscated.

Four small (4-5 mm.) specimens from Roebuck Bay may represent another variety. They are black with a slight coppery gloss, and parts of the under-surface and legs have a slight bluish or greenish gloss, the legs and antennae are mostly of a dingy testaceous, more or less infuscated in parts.

RHYPARIDA DISCOPUNCTULATA, Blackb.

Pl. viii., figs. 169 and 173.

A short, broad form with the elytra scarcely wider than the prothorax at the base, so that their outlines are practically continuous. Although described as "cyaneonigra," it is only the elytra (49) that have a bluish (sometimes a greenish) gloss; occasionally the gloss is entirely absent. The head and legs (wholly or in part) are sometimes obscurely reddish, and the elytra are sometimes diluted with red about the apex. The prosternum has a few oblique striae about the base, but they are usually faintly impressed. The length varies from 5 to 6 mm. The species is abundant in Northern Queensland (Bloomfield and Coen Rivers, Bundaberg, Cairns, and Darnley Island).

RHYPARIDA HERBACEA, Blackb.

The type and a co-type of this species have the prothorax reddish, and are the only specimens in the Museum so coloured. One marked by the late Rev. T. Blackburn as "(?) *herbacea*, var.," has the prothorax of the same dull metallic-green as the elytra, but its head is of a dingy-red, with a metallic-green gloss. Two specimens (from Chillagoe) have the head and prothorax coloured as the elytra; two others (from Chillagoe and Port Denison) have the head and prothorax of a dull coppery-blue, and one (from Normanton) has the head, prothorax, and elytra of a dark greenish-bronze. All these agree in their dull metallic appearance, due to the shagreened surface, and all have the sides of the prosternum with remnants of striae.

---

(48) On this form, including the type, the elytra are more or less purplish.

(49) The type and three co-types are in the Museum.

It is probable that if some of these specimens could be compared with the type of *viridiaenea*, they would be found to agree with same, but even if this should prove to be the case the name *herbacea* should be retained as varietal for the form with red prothorax.

RHYPARIDA AENEOTINCTA, Blackb.

Pl. vi., fig. 35.

The type of this species is in the Museum.

RHYPARIDA POSTICALIS, Blackb.

Pl. vi., fig. 36.

Three specimens of this species, with almost identical elytral markings, are in the Museum.

RHYPARIDA AMPLICOLLIS, Blackb.

Pl. vi., fig. 37.

The type and many co-types of this species are in the Museum. The elytra were stated to have "regione suturali antice late subaeneis, latera versus nonnullis exemplis longitudinaliter aeneo-notatis." It is over twenty years since they were described, and possibly some alteration has taken place, but there is *now* not the least metallic appearance on any of them. There is an obscure infuscate blotch (of varying size) in the scutellar region, and on some specimens a vague infuscate humeral spot and a postmedian one on the seventh interstice of each elytron; on one co-type there is also a vague postmedian spot on the third interstice. The prosternum is without medio-lateral striae, but a few faint ones may be traced at the base. A specimen from the Coen River has very minute punctures on the head; the prothorax and elytra, except for portions of the margins, are deeply infuscated throughout.

Variety A. Some large (7½-8½ mm.) specimens from the Northern Territory (apparently sent with the typical form) and King Sound differ in being of a brighter colour, prothorax with a vague infuscate blotch towards each side, and a still more vague one in the middle; the elytra with a small post-scutellar space (but the suture throughout), each shoulder and a spot on the fourth interstice, and another on the eighth about the middle, more or less conspicuously infuscated. The punctures on the head (including clypeus) and prothorax are also more distinct. On the typical form (14 specimens) the punctures decidedly decrease in size towards the apex of the elytra, and are quite regular in the striae; at the apex between the marginal and submarginal striae the interstice is conspicuously wider than the others, and either impunctate, or with but one or two punctures. On the variety (5 specimens) the interstice there is covered with coarse, crowded punctures, and the whole of the apical portion is more or less coarsely punctured.

Two specimens from Northern Queensland are rather smaller (7 mm.) and narrower, with most of the prothorax entirely black, but the elytral markings and apex are as on the variety. A specimen from Charters Towers has markings as on the variety, but the apex of elytra is as on the typical form

RHYPARIDA FLAVA, Clark.

piceitarsis, Blackb.

var. *pallida*, Jac.

This species is abundant in the Northern Territory and North-western Australia, and there are two in the Macleay Museum from Port Denison, and varies in length from 4 to 6 mm. The knees, tips of tibiae, and the tarsi are usually infuscated or black; the abdomen and metasternum are also sometimes black or infuscated. *Pallida* appears to have been described from specimens (of which there are several (50) in the Museum) with entirely pale legs. Mr. Arrow sent a specimen labelled "New Holl." as *flava* after comparison with the type; it is simply a fairly large specimen of the species subsequently named *piceitarsis* by Blackburn.

RHYPARIDA PUNCTULATA, Blackb.

This species has eyes decidedly larger than usual, the space between them considerably less than the diameter of an eye (less in the male than in the female), and the front notched in the middle. It is also distinct by the conspicuous punctures of head and prothorax, the elytral punctures strong at the base and small posteriorly, a small acute projection on each front angle of prothorax, and by the dentate hind femora; the tooth is small, but from some directions is quite distinct.

Two specimens from Melville Island differ from the type, and some co-types, in having the upper-surface black, in places with a vague bluish gloss, and the elytra obscurely diluted with red posteriorly; the under-surface and legs are also more or less deeply infuscated.

---

(50) Including one from Melville Island.

RHYPARIDA PILOSA, n. sp.

Castaneous; sides and apical half of elytra, abdomen, and appendages paler. Elytra with rows of fairly long and distinct hairs, head and prothorax with shorter and less distinct ones.

Head with dense and fairly coarse punctures throughout, with a feeble medio-basal elevation. *Prothorax* about half as long as greatest width, sides strongly rounded, front angles lightly armed; with dense and fairly large but rather shallow punctures, becoming smaller about apex and subconfluent on sides. *Elytra* parallel-sided from shoulders to apical third, greatest width scarcely more than that of prothorax, but considerably wider than base of same; with fairly dense, rather large, and somewhat irregular punctures, becoming smaller posteriorly, and almost disappearing from apical slope. Flanks of *prosternum* conspicuously striated from base to apex. Hind *femora* minutely dentate; claws bifid. Length, 3-3½ mm.

Hab.—North-western Australia: Fortescue River (W. D. Dodd). Type, I. 3079.

The conspicuous elytral clothing readily distinguishes this species from all others of the genus. The basal portions of the elytra are paler than the prothorax, but each has a feeble longitudinal vitta extending from the shoulder to about the middle, where the shade is the same as that of the prothorax. The two specimens in the Museum differ somewhat in size, but in very little else; they appear to be females.

RHYPARIDA MEGALOPS, n. sp.

♂. Blackish-piceous; elytra at apex, an indistinct spot on each shoulder, and the appendages testaceous.

Head with rather dense and strong punctures; not longitudinally impressed. Eyes unusually large, distance between them only about one-third the transverse diameter of an eye. *Prothorax* scarcely twice as wide as median length, front angles almost unarmed; with fairly numerous, rather small but clearly defined punctures, becoming slightly more numerous and larger on sides than on disc. *Elytra* subparallel-sided to beyond the middle; with clearly defined rows of fairly large punctures about base, becoming smaller posteriorly, and (except about suture and sides) almost disappearing from apical slope. Flanks of *prosternum* strongly striated throughout. Length, 2¾ mm.

Hab.—Queensland: Gladstone (A. M. Lea). Type (unique), I. 3422.

A minute species evidently allied to *apicalis*, but differing from all the specimens commented upon as probably belonging to that species by the even larger eyes, the space between them being only about one-third of the diameter of an eye, and the head being without a median longitudinal impression. The prothoracic punctures, although sharply defined, exhibit no tendency to become oblong or confluent. I have been unable to see the claws clearly, but they appear to be bifid.

RHYPARIDA APICIPENNIS, n. sp.

♂. Black; head, apical portion of elytra, an obscure spot on each shoulder, and the appendages of a more or less dingy-red.

Head with dense and rather coarse punctures; with a vague median impression. Eyes large, separation about one-half the transverse diameter of each. *Prothorax* at base about once and one-half the median length, front angles unarmed; with fairly numerous, clearly-defined punctures, of rather small size, becoming slightly denser towards but absent from extreme sides. *Elytra* suboblong-ovate, distinctly but not much wider than prothorax, widest beyond the middle; with clearly-defined rows of moderate punctures about base, becoming much smaller towards but traceable almost to apex. Flanks of *prosternum* distinctly striated throughout. *Claws* bifid. Length, 4-4½ mm.

Hab.—North-western Australia (Macleay Museum). Type, I. 3447.

Larger and wider than any specimen in the Museum that could be referred to *apicalis*, to which it is very close, but the prothorax is less transverse and more convex, and with smaller punctures, not at all confluent laterally, and elytra with punctures even less distinct posteriorly. The femora appear to be truly edentate. A specimen, evidently a female, differs from the type in being slightly wider, head not reddish and with somewhat smaller eyes, elytra with pale portion occupying more of the apex, and less encroached upon at suture, and abdomen more evenly convex.

RHYPARIDA MAYAE, n. sp.

Black; head, apex of prothorax, elytra (suture and a large spot on each side towards base excepted) and parts of undersurface, more or less reddish; appendages (parts of the legs somewhat infuscated) paler.

Head shagreened; with moderately dense but rather small punctures, rather stronger on clypeus than elsewhere; with a feeble median elevation from base to clypeus. Eyes rather widely separated. *Prothorax* rather small, not twice as wide as median length, front angles unarmed; with sharply-defined and fairly-dense but rather small punctures, becoming slightly larger but sparser towards sides. *Elytra* at base distinctly wider than prothorax, sides feebly dilated to beyond the middle; with regular (on parts of the lateral slopes irregular) rows of fairly large punctures, becoming smaller towards but quite conspicuous to apex; interstices with minute punctures. Flanks of *prosternum* strongly striated throughout. Hind *femora* feebly dentate; claws acutely appendiculate. Length, 4½-5 mm.

Hab.—Western Australia: Mullewa and Lennonville (Miss J. F. May); South Australia: Gawler Ranges (S. A. White). Type, I. 3081.

In general appearance close to some forms of *apicalis*, but eyes more distant (in both sexes), smaller, and more prominent, head with smaller and denser puctures, median impression more feeble and connected with the base by a fine ridge, prothoracic punctures not laterally confluent and oblong, and series of elytral punctures quite distinct to apex. Of the five specimens before me, three (including the type) have a large blackish blotch on the basal half of each elytron, not very sharply defined and not extending to base, suture, or side; the fourth has each spot larger and still less sharply defined; the fifth has the upper-surface entirely castaneous, except that the elytra become flavous about apex, parts of its sterna are rather deeply infuscated. The sexual differences, apart from the front tarsi, are slight.

RHYPARIDA PARVICOLLIS, n. sp.

Dark piceous-brown; head, elytra (except for a wide vitta covering most of each), and appendages more or less castaneous or flavous.

Head specially convex about base; with sparse and small punctures there; with a short median impression towards the front; clypeus with dense and distinct punctures. Eyes widely separated. *Prothorax* small, base scarcely once and one-half the median length, front angles not distinctly armed; with minute punctures becoming slightly larger on sides. *Elytra* at base distinctly wider than prothorax, sides feebly dilated to beyond the middle, where the width is almost twice that of the prothorax; with regular rows of fairly large punctures, becoming smaller towards but distinct to apex. Flanks of *prosternum* striated throughout. *Claws* acutely appendiculate. Length, 4¼ mm.

Hab.—Western Australia: Geraldton (A. M. Lea). Type (unique), I. 3448.

In general appearance close to *apicalis* and the preceding species, but head smaller and swollen at base, prothorax smaller and with minute punctures (even at sides). From *apicalis* also it differs in the elytral punctures, being distinct to apex. The elytra have the sides and apex almost flavous, the base and a sutural space darker, and elsewhere almost black, but the shades of colour are only sharply defined laterally.

RHYPARIDA ELLIPTICA, n. sp.

Black, upper-surface with a vague metallic greenish gloss; apical portion of elytra, muzzle, abdomen, and appendages more or less testaceous, parts of antennae and of legs infuscated.

Head with rather small and not very dense, but distinct, punctures, becoming larger and more crowded on clypeus. Eyes widely separated and rather prominent. *Prothorax* almost twice as wide as the median length, sides and angles evenly rounded; with fairly dense and small, sharply-defined punctures, becoming slightly larger on sides. *Elytra* at base no wider than base of prothorax, sides gently rounded and widest across middle; with regular rows of fairly-large punctures, becoming smaller towards but distinct to apex. Flanks of *prosternum* striated throughout. Metasternum with some large punctures towards sides. Hind *femora* minutely dentate; claws acutely appendiculate. Length, 3½-3¾ mm.

Hab.—Queensland: Cape York (Blackburn's collection), Stewart River (W. D. Dodd). Type, I. 3095.

In size and general appearance something like some of the dark varieties of *apicalis*, but with a metallic gloss (absent, however, from the Cape York specimen, but which is in poor condition), elytral punctures distinct to apex and eyes smaller, more prominent and more widely separated, and the median groove on one specimen so indistinct that it could be fairly regarded as absent, and from two others altogether wanting. The clypeus, although without a distinct suture posteriorly, is quite distinctly separated from the rest of the head by being slightly separately convex, and with punctures much denser than on the space immediately behind it. The three specimens before me appear to be all males, as the four front tarsi are distinctly inflated, and their eyes are of the same size. The notch on each of the hind tibiae is rather feeble, but on the middle ones of normal size. The general outlines are almost perfectly elliptical.

RHYPARIDA MEDIONIGRA, n. sp.

Pl. vi., fig. 38.

Black; head (a conspicuous median spot excepted), elytra (wholly or in part), and part of abdomen more or less reddish, appendages paler.

Head with moderately dense but not very large punctures, becoming larger and more crowded on clypeus; with a short medio-frontal impression. Eyes rather widely separated. *Prothorax* at base scarcely once and one-fourth the median length, sides rather strongly rounded, and widest nearer base than apex, front angles unarmed; with fairly dense but rather small punctures, becoming larger and denser on sides. *Elytra* distinctly wider than prothorax, sides parallel for about half their length, or very feebly dilated to beyond the middle; with rows of rather small punctures, becoming smaller posteriorly, and absent from apical slope. Flanks of *prosternum* striated throughout. *Femora* minutely dentate; claws bifid. Length, 3¾-4 mm.

Hab.—South Australia: Leigh Creek (Blackburn's collection), Mount Painter (near Leigh Creek) (H. G. Stokes). Type, I. 3059.

Closely allied to *apicalis*, but eyes more widely separated, and head more convex about base. From *mayae* it is readily distinguished by the elytral punctures almost disappearing posteriorly, and head with a medio-basal carina.(51) The three specimens before me vary somewhat in colour. On the type each elytron has a large blackish blotch (becoming paler in places) connected with the side (this narrowly black throughout) at the summit of the apical slope. A specimen (associated with the type in the Blackburn collection) has the base and apex of prothorax reddish, and the elytra almost entirely reddish, becoming paler posteriorly, but with the suture and sides feebly infuscated. The specimen from Mount Painter is without a cephalic spot, the prothorax is reddish (vaguely infuscated towards each side), and the elytra are mostly flavous, becoming darker towards base and suture, and with a vaguely-defined infuscate spot on the basal half towards each side.

RHYPARIDA FLAVIPENNIS, n. sp.

Dark reddish-brown; elytra (suture and sides excepted), legs, and antennae (the apical joints more or less infuscated) flavous.

---

(51) No doubt on specimens with the base of the head partially concealed the carina would be covered; but of both species there are specimens before me with the base of the head not concealed.

Head with rather small and not very dense punctures, becoming larger towards and densest on clypeus; without a median impression. Eyes small and widely separated. *Prothorax* at base almost equal to median length, front angles unarmed; with moderately dense and rather small, clearly-defined punctures, becoming larger and denser on sides. *Elytra* considerably wider than prothorax, almost parallel-sided to beyond the middle; with rows of fairly large punctures, rapidly becoming smaller and disappearing (except near suture and sides) from apical slope. Flanks of *prosternum* striated throughout. *Femora* minutely dentate; claws acutely appendiculate. Length, 3¾ mm.

Hab.--Western Australia: Cue (H. W. Brown). Type, I. 3123.

In some respects resembling some of the pale forms of *apicalis*, but readily distinguished by the widely-separated eyes (these, for the genus, are exceptionally small and distant), and absence of a median groove. The series of punctures on the elytra appear to almost abruptly terminate before the middle, but in certain lights they are vaguely traceable almost to the apex, although extremely small and shallow. On the head and prothorax of one specimen, although there are no distinct markings, certain parts are obscurely darker than other parts.

RHYPARIDA BREVIS, n. sp.

Pl. vi., fig. 39.

Dark-red; elytra (suture excepted), abdomen, and appendages more or less flavous.

Head without punctures, except on clypeus, where they are rather small and sparse, although distinct; with a distinct medio-frontal impression, connected in middle with an oblique clypeal suture. Eyes rather large, widely separated, a narrow depression behind each. *Prothorax* more than twice as wide as median length, front angles armed; with numerous rather small punctures, almost disappearing from near all the margins. *Elytra* short, very little wider than prothorax; with regular rows of fairly large punctures, becoming smaller towards but distinct to apex. Flanks of *prosternum* rather lightly striated. *Femora* minutely dentate; claws bifid. Length, 3-3½ mm.

Hab.—Northern Queensland (Blackburn's collection), Cairns (Macleay Museum, E. Allen, and A. M. Lea), Type, I. 3110.

The prothorax and sterna are almost of a deep blood-red, but the head is somewhat paler (although darker than the elytra). Four specimens have colours exactly as described, but two others have three conspicuous spots on the elytra, one about the middle of each, and the third common to both on the suture near the scutellum. Another specimen has somewhat similar but less sharply-defined spots. A specimen in the Macleay Museum is black, except for the head and parts of the appendages. The flanks of the prosternum have many striae extending from base to apex, but on the apical half they are not very sharply defined, they cover a space at least halfway from the coxa to the outer margin on each side, the outer side being smooth; this character will readily distinguish the species from *trimaculata*, whose prosternum, even at the base, is not longitudinally strigose.

RHYPARIDA PLATYDERES, n. sp.

Reddish-castaneous; elytra somewhat paler about their apex, abdomen and appendages more or less flavous.

Head with moderately dense but rather small punctures, becoming denser and somewhat larger on clypeus; with a narrow medio-frontal impression, connected with a feeble clypeal suture. Eyes rather large and moderately separated, a shallow groove behind each. *Prothorax* across middle about thrice the median length, front angles unarmed; with rather small and not very dense but clearly-defined punctures, almost disappearing before all the margins. *Elytra* suboblong to beyond the middle, very little (at extreme base not at all) wider than prothorax; with rows of not very large punctures, becoming distinctly smaller towards but distinct to apex. Flanks of *prosternum* striated throughout. *Femora* minutely dentate; claws appendiculate. Length, 3-3¼ mm.

Hab.—Northern Queensland (Blackburn's collection). Type, I. 3113.

In general appearance rather close to the preceding species, but head more convex, and with much more conspicuous punctures, eyes rather larger and less prominent, front angles of prothorax more rounded and not armed, and punctures in general slightly different. On the forehead there is a vaguely-infuscate spot.

RHYPARIDA PROSTERNALIS, n. sp.

Piceous-brown, sides and apex of elytra slightly paler; abdomen and appendages more or less testaceous.

Head with small and rather dense punctures, becoming larger on clypeus; with a narrow medio-frontal impression, connected with a vague clypeal suture. Eyes large, separation about equal to the transverse diameter of an eye. *Prothorax* about thrice as wide as the median length, sides feebly rounded and decreasing in width from base to apex, front angles unarmed: with fairly numerous sharply-defined but rather small punctures, almost disappearing laterally. *Elytra* suboblong-ovate, very little wider than prothorax, widest at about middle; with rows of fairly large punctures, becoming smaller towards but quite distinct to apex. Flanks of *prosternum* conspicuously striated throughout; episterna densely and coarsely punctate. *Femora* minutely dentate; claws bifid. Length, 3½ mm.

Hab.—Queensland: Coen River (W. D. Dodd). Type (unique), I. 3092.

In general appearance like some of the darker forms of *apicalis*, but seriate punctures of elytra distinct to apex.

RHYPARIDA BIMACULICOLLIS, n. sp.

Pl. vi., fig. 40.

Flavous; prothorax dark reddish-castaneous, a large ill-defined black spot on each side; elytra with the suture and epipleurae infuscated, and with a conspicuous blackish spot on suture near base, sterna and apical half of antennae infuscated.

Head with small punctures at base, disappearing before clypeus; with a feeble disconnected frontal impression; clypeus with fairly dense and distinct punctures, without suture posteriorly. Eyes large, prominent, and widely separated. *Prothorax* rather more than twice as wide as long, all angles armed; with dense and rather small punctures, but absent from close to base and at sides. *Elytra* distinctly wider than prothorax, parallel-sided to beyond the middle; with rows of rather large punctures, becoming much smaller towards, but traceable to apex: interstices with sparse and minute punctures. Flanks of *prosternum* distinctly striated throughout. *Femora* minutely dentate; claws bifid. Length, 3½-3¾ mm.

Hab.—Queensland: Cairns district (A. M. Lea), Kuranda (H. H. D. Griffith). Type, I. 3119.

In general sculpture close to *tenuis*, but, apart from the very different colour, prothorax more transverse, with much more conspicuous punctures, and with front angles conspicuously armed. In these it agrees with *minuscula*, but from that species it differs in being larger, with bimaculate prothorax and striated prosternum.

RHYPARIDA SUBANGULATA, n. sp.

Pl. vi., fig. 41.

Of a dingy reddish-castaneous, elytra paler but with dark markings, prothorax with more or less conspicuous markings; abdomen and appendages more or less flavous.

Head shagreened, impunctate; with a narrow medio-frontal disconnected impression; clypeus impunctate or almost so, its hind suture distinct only at each side, where it is connected with a narrow depression margining the eye. Eyes rather large and widely separated. *Prothorax* shagreened and impunctate; at base about twice the median length, sides subangularly dilated near base, and then rapidly diminishing in width to apex, front angles obtusely armed. *Elytra* suboblong-ovate, at base scarcely wider than greatest width of prothorax; with rows of rather large punctures, becoming much smaller towards, but distinct to apex. Flanks of *prosternum* with striae fairly strong at base, and traceable to but very feeble towards apex. *Femora* minutely dentate; claws bifid. Length, 4-4¼ mm.

Hab.—Northern Queensland (Blackburn's collection), Cairns (Macleay Museum and E. Allen). Type, I. 3426.

Close to some of the smaller and more convex forms of *brevilineata*, but clypeus impunctate (on two specimens, however, very vague punctures may be traced); the sides of the prosternum also have striation traceable to apex. The seven specimens before me all differ somewhat in their markings, but all have five blackish spots or stripes on the prothorax, the penultimate one towards each side being the longest; on three specimens (including the type) they are all more or less obscurely connected, but on four others the middle one is isolated. On each elytron of the type there is a blackish spot near the base of the fourth interstice, and the sides are narrowly black. On three others the markings are smaller and less defined; but on another they are greatly extended but very ill-defined, owing to the obscuring of the paler parts.

RHYPARIDA CRASSIPES, n. sp.

Black, with a vague metallic gloss; legs sometimes obscurely diluted with red, basal joint of antennae obscurely reddish.

Head with sparse and minute punctures about base, becoming fairly numerous in front and dense and rather coarse on clypeus; with a narrow, disconnected, medio-frontal impression. Eyes widely separated and not very large. *Prothorax* not twice as wide as the median length, front angles unarmed; disc with small and sparse punctures, becoming decidedly larger and denser towards sides. *Elytra* suboblong, very little wider than prothorax; with rows of large punctures, becoming smaller (but still of fairly large size) to apex. Flanks of *prosternum* conspicuously striated throughout. Metasternum with dense and rather coarse punctures, in places transversely confluent, but absent from sides. *Legs* unusually stout; femora minutely dentate; claws appendiculate. Length, 3¾-4½ mm.

Hab.—Queensland: Stewart River (W. D. Dodd). Type, I. 3093.

A rather narrow, black species, somewhat suggestive of *Chalcolampra*, with unusually stout legs and antennae. From *elliptica* it is distinguished by its narrower form, thicker and darker legs, coarse punctures, and different cephalic impression. The head is densely punctate on the clypeus and near same, then there is a shiny and almost (or quite) impunctate space, and then at the base the punctures are again dense and conspicuous, but the basal punctures are quite concealed when the head is partially retracted. The femora from most directions appear to be edentate, but from one a very minute tooth becomes visible; the claws from most directions appear to be simple, but really each has a small and acute, but feebly separated, appendix.

RHYPARIDA OPHTHALMICA, n. sp.

Black; a flavous spot on each side of base of head, base of antennae, and parts of tarsi more or less flavous.

Head with fairly dense and rather small punctures, becoming larger but not denser on clypeus; with a vague, medio-frontal impression. Eyes rather large, very prominent, separation about equal to the transverse diameter of an eye. *Prothorax*, at widest, about thrice the median length, sides subangularly dilated near base, rapidly diminishing thence to apex, front angles unarmed: with fairly dense and small, sharply-defined punctures, becoming slightly denser on sides. *Elytra* at base scarcely wider than prothorax, sides feebly dilated to beyond the middle: about base with fairly large punctures, rapidly becoming smaller and almost disappearing before apex. Flanks of *prosternum* with striae from base to apex. *Femora* minutely dentate; claws bifid. Length, 3½ mm.

Hab.—Queensland: Cairns district (A. M. Lea). Type (unique), I. 3429.

The prosternum is distinctly striated posteriorly, and the striation is narrowly continued along the sides to the apex; the individual striae, however, do not appear to be so continued, but those from the base appear to extend almost to the apex, and then inwards from these a fresh lot starts and extends to apex. The antennae are thicker than is usual in the genus. The elytra have a faint bluish gloss, as on some forms of *dimidiata*, and the elytral punctures are somewhat as on that species, but the two have little else in common. The head is somewhat as on *tropica*, but the prothoracic punctures and prosternum are very different.

RHYPARIDA RUFICEPS, n. sp.

Black; head, tips of elytra, and epipleurae towards base, and appendages more or less reddish-flavous.

Head with small punctures at base, but almost disappearing before clypeus; with a narrow median impression; clypeus with distinct but not very large punctures, posterior suture defined only at sides. Eyes large, distance between them slightly less than the transverse diameter of an eye. *Prothorax* about twice as wide as the median length, front angles scarcely armed; with small and rather sparse punctures. *Elytra* subovate, at extreme base very little wider than prothorax, but across widest part (at about the apical third) considerably wider; with rows of fairly large punctures, almost disappearing posteriorly. Flanks of *prosternum* conspicuously striated from base to apex, except on outer margins. *Femora* very minutely dentate; claws appendiculate. Length, 3 mm.

Hab.—New South Wales: Jenolan (J. C. Wiburd). Type (unique), I. 3449.

A small, oval, black species, with conspicuously reddish head and appendages.

RHYPARIDA MELVILLENSIS, n. sp.

Pl. vi., fig. 42.

Blackish-brown, some parts more or less flavous or testaceous.

Head shagreened; with small and feeble punctures at base, disappearing entirely before clypeus, the latter with rather dense and large ones; with a narrow medio-frontal impression connected with a bisinuate clypeal suture. Eyes large, prominent, and widely separated. *Prothorax* scarcely twice as wide as the median length, all angles armed; with rather small but well-defined, and rather irregularly distributed, punctures. *Elytra* suboblong, distinctly wider than prothorax; with rows of large punctures, becoming much smaller towards, but distinct to apex. Flanks of *prosternum* distinctly striated throughout. *Femora* unarmed; claws appendiculate near base. Length, 5 mm.

Hab.—Melville Island (W. D. Dodd). Type, I. 3084.

The prominent eyes, conspicuously punctate clypeus, with the head elsewhere practically impunctate, the conspicuously striated prosternum and rows of large elytral punctures, form a combination of characters that should be peculiarly distinctive, even if (as is probably the case) the colours are not to be depended upon. The paler parts are the head (except for a subtriangular basal spot and the clypeal suture), two obscure spots near the base of each elytron, and a narrow strip almost at apex, part of abdomen, legs (basal parts of tibiae excepted), palpi, and most of anennae.

Three specimens from Adelaide River (in the British Museum) belong to this species; one is coloured exactly as the type, except that a greater portion of the apex of the elytra is pale; on the other two the apex is as on the type, but the basal markings are reduced to an elongate spot on each shoulder, where the black is diluted to red.

RHYPARIDA MILITARIS, n. sp.

Pl. vi., fig. 43.

Reddish-brown, palpi and parts of antennae and legs paler; elytra conspicuously striped.

Head shagreened and minutely punctate; with a narrow, deep, medio-frontal impression, connected with clypeal suture; clypeus with fairly dense and rather large punctures. Eyes moderately large and widely separated. *Prothorax* across middle almost twice the median length, all angles armed; with fairly dense and rather small, but clearly-defined punctures, disappearing from close to all the margins. *Elytra* of the same shape as in the preceding species, and with similar but slightly smaller punctures. Flanks of *prosternum* conspicuously striated about base, but feebly elsewhere. *Femora* edentate. Length, 4 mm.

Hab.—Melville Island (W. D. Dodd). Type (unique), I. 3121.

In sculpture rather close to the preceding species, but strikingly different in colours. I have not been able to see the claws clearly. The flanks of the prosternum are conspicuously striated about the base, but the major portion of each side is shining and smooth, about one-fourth from each margin to the coxa there are fine striae that are traceable to the apex, but discernible practically only by the surface appearing opaque. On each elytron the suture and margin, and the fourth, sixth, and eighth interstices are conspicuously darker than the others, these being almost flavous.

RHYPARIDA POLYMORPHA, n. sp.

Pl. vi., figs. 44 and 45.

Black, some parts reddish, or reddish some parts black, or reddish, parts of antennae infuscated.

Head with fairly dense but small punctures about base, becoming very feeble in front; with a narrow medio-frontal impression, connected with an irregular clypeal suture; clypeus with dense and rather coarse punctures. Eyes large, prominent, and widely separated. *Prothorax* about twice as wide as the median length, all angles rather strongly armed; with very feeble scattered punctures, but with some very conspicuous about the base and sides, and forming a short irregular oblique row near each front angle. Flanks of *prosternum* with distinct striae from base to apex. *Femora* minutely dentate; claws bifid. Length, 3-4 mm.

Hab.—New South Wales: Nowra (Macleay Museum), Ourimbah (E. W. Ferguson), Picton (H. H. D. Griffith), Sydney (A. J. Coates, H. J. Carter, and British Museum, from C. Darwin), Wollongong, Clifton, Galston, National Park (A. M. Lea); Victoria (Blackburn's collection). Type, I. 3053.

The general appearance is very suggestive of *Arsipoda* of the *Halticides*. The large punctures on the prothorax forming an irregular, transverse row at the base, a few at the sides, and a few forming a short, oblique line inwards from each of the front angles, together with the conspicuously striated flanks of prosternum are alike on the forty-three specimens before me, so that, despite the great variations in colour, I believe them to belong to but one species. It is difficult to be sure which should be regarded as the typical form, but as there are nineteen almost similarly coloured specimens, one of these has been regarded as the type; it belongs to the first form. The various forms are as follow:—

1. Of a dingy reddish-castaneous, some parts slightly paler than others; apical half of antennae with joints more or less infuscated (nineteen specimens).

2. Head and prothorax of a deeper red, the latter with an infuscate spot in middle, each elytron with an infuscate spot in the middle, at about the basal two-fifths; legs partly black (two specimens).

3. Of a rather dark-red, elytra paler posteriorly, and each with a conspicuous black vitta extending from the interhumeral depression (where it is narrowest) to slightly beyond the middle (four specimens; but one with markings so pale that it should, perhaps, be regarded as belonging to Form 1).

4. Under-surface more or less deeply infuscated, prothorax and legs as on Form 2; elytra as on Form 3 (four specimens).

5. Deep-red; apical half of elytra black (the two colours sharply defined, but the junction uneven), under-surface mostly black, but outer half of each flank of prosternum conspicuously reddish, legs mostly black, antennae entirely pale, except tip of eleventh joint (one specimen).

6. Black, head and prothorax deep red; scutellum, parts of base of elytra (on one specimen base of epipleurae as well), parts of meso- and metasternum, of abdomen and of legs, more or less obscurely reddish; palpi and basal third of antennae flavous, the rest black (six specimens).

7. Black, head red, front angles of prothorax, parts of base of elytra (including epipleurae), and parts of legs more or less obscurely reddish, antennae with basal third flavous, the rest infuscate in parts, palpi flavous (one specimen).

There are in the Museum three specimens from South Australia (Petersburg, Blackburn's collection, and Morgan, Mrs. Kreusler) that I cannot satisfy myself are distinct from this species. They have coarse, irregular punctures at sides and base of prothorax, rather more numerous than on the other forms, but not forming a distinct oblique row on each side towards the front; the punctures are present there, but not conspicuous, owing to many others being in their vicinity; the striation of prosternum is not quite so extensive, and the elytra are rather more parallel-sided. Regarding them as conspecific, they might be treated as another form as follows:—

8. Of a rather bright-castaneous; elytra flavous, suture, sides, and the scutellum infuscate, under-surface mostly infuscated, appendages flavous, but knees sometimes infuscated, and apical half of antennae more or less dark (three specimens).

9.(52) Like Form 5, but with prothorax black and antennae (except the five basal joints) deeply infuscated (one specimen).

10. Entirely black, except palpi and base of antennae (one specimen).

In addition, there are several less well-defined forms.

RHYPARIDA COPEI, n. sp.

Reddish-castaneous; elytra paler, towards apex, suture and sides infuscated, a fairly large blackish blotch connected with each side, commencing near base and terminating about middle; under-surface more or less deeply infuscated, or blackish in parts; appendages flavous.

Head with fairly dense but rather small punctures, somewhat denser on clypeus, but scarcely larger than elsewhere; with a short medio-frontal impression. Eyes rather large, not very prominent, separation somewhat less than the transverse diameter of an eye. *Prothorax* about twice as wide as the median length, front angles very feebly armed; with sparse and small punctures, becoming larger and denser towards sides. *Elytra* suboblong, distinctly wider than prothorax; with rows of punctures of moderate size, almost disappearing posteriorly. Flanks of *prosternum* conspicuously striated throughout. *Femora* very minutely dentate; claws appendiculate. Length, 3½ mm.

---

(52) Forms 9 and 10 were sent for examination some time after the others were noted.

Hab.—South Australia: Murray River (H. S. Cope). Type (unique), I. 3450.

In general appearance resembles some of the smaller forms of *apicalis*, but elytra wider, prothorax and head with different punctures, striation of prosternum, etc., different. In colour it resembles some forms of the preceding species, but the prothoracic punctures are very different. In the table it is associated with *interioris*, but it differs from the species I have doubtfully so identified in colours, punctures of head and prothorax, and in the eyes, etc.

RHYPARIDA ALLENI, n. sp.

Of two or more shades of castaneous.

Head with moderately dense but rather small punctures, becoming much smaller in front; with a narrow medio-frontal impression, connected with clypeal suture in front, and with base by a feebly-elevated line; clypeus with fairly dense and distinct punctures. Eyes fairly large, rather widely separated, a narrow depression behind each. *Prothorax* about twice as wide as the median length, all angles acutely armed; with rather small, clearly-defined, unevenly distributed punctures. *Elytra* rather briefly suboblong, distinctly wider than prothorax: with rows of rather large punctures, becoming smaller towards, but quite distinct to apex. Flanks of *prosternum* striated from base to apex, but rather indistinctly so in places. *Femora* edentate; claws bifid. Length, 5½-7 mm.

Hab.—Queensland: Cairns district (Macleay Museum, E. Allen, and A. M. Lea). Type, I. 3425.

The sides of the prosternum are rather strongly striated at the base, and lightly but distinctly along the middle. This character will readily distinguish it from some of the varieties of *brevilineata*. The elytra, except the sides and suture, are slightly paler than the prothorax, and have rows of watery-looking punctures (on some specimens looking like rows of small infuscate spots); the legs are sometimes as dark as the under-surface, but usually are partly flavous. One specimen has a rather large infuscate spot on each side of the prothorax, and some vague postmedian spots on the elytra; another has a vague spot on the forehead; its prothorax has sides almost black, and disc with three large blotches, all vaguely connected together, but the outer ones blackish; each elytron has a dark spot on the shoulder, and a small one on the fourth interstice beyond the middle, and another on the eighth, and each puncture is distinctly infuscated; parts of its under-surface and the knees are also infuscated.

RHYPARIDA ANGUSTICOLLIS, n. sp.

Shining-black; front of clypeus, labrum, under-surface (parts of metasternum black), and appendages (apical two-thirds of antennae and middle of front tibiae infuscated) more or less reddish, scutellum obscurely diluted with red.

Head with a small median impression; with rather numerous punctures and transverse wrinkles between eyes, towards base with sparse punctures; clypeus finely rugose and with some large punctures. *Prothorax* not much wider than long, basal two-thirds almost parallel-sided, front angles rounded off and unarmed; with scattered punctures of moderate size, becoming very small in front. *Elytra* suboblong, parallel-sided to near apex, much wider than prothorax; with rows of punctures, fairly large about suture and shoulders, very small elsewhere, and disappearing posteriorly. Flanks of *prosternum* with feeble transverse striation, and with some large punctures at base. Front of *femora* lightly dentate; claws each with a large basal appendix. Length, 7½ mm.

Hab.—Queensland: Cairns. Type (unique) in Macleay Museum.

The outlines of this and of the following species are much as in *vulnerata*, but, apart from the different colours, the deep cephalic impression and conspicuously striated flanks of prosternum of that species should prevent them from being confounded together.

RHYPARIDA TETRASPILOTA, n. sp.

Pl. vi., fig. 46.

Bright flavous-red; antennae with apical two-thirds infuscated, elytra with four large blackish spots.

Head with a rather feeble median line; with fine wrinkles and numerous distinct punctures between eyes, both becoming more numerous on clypeus, but towards base without wrinkles, and the punctures rather sparsely distributed. *Prothorax* rather lightly transverse, sides feebly rounded, front angles unarmed; with scattered punctures of moderate size, becoming very small in front. *Elytra* with outlines and punctures much as on preceding species. Flanks of *prosternum* with fine transverse striation, base rugose. Front *femora* distinctly dentate, the others very feebly so; claws each with a large basal appendix. Length, 7 mm.

Hab.—Queensland: Cairns. Type (unique) in Macleay Museum.

The spots on each elytron do not quite extend to the side or suture, the basal one is the smaller, is transverse and does not include the shoulder, the subapical one is longer than wide, jagged on its front edge and rounded on its hind one.

RHYPARIDA VULNERATA, n. sp.

Bright-castaneous; a wide, irregular prothoracic fascia (interrupted in middle and nearer base than apex), elytra (part of base, sides, and apex all narrowly excepted), a spot on each side of meso- and of metasternum, tibiae, most of tarsi and of antennae black or blackish.

Head with fairly large and deep basal punctures, becoming smaller in front, transversely wrinkled between eyes; with a deep medio-frontal impression; clypeus with large punctures and transversely wrinkled. Eyes prominent, of moderate size and widely separated. *Prothorax* not twice as wide as the median length, angles feebly armed; with irregularly distributed punctures, varying from minute (where at first the surface appears to be impunctate) to large; an irregular oblique impression towards each side. *Elytra* oblong, much wider than prothorax; with rows of punctures, large close to scutellum but smaller elsewhere, and almost disappearing posteriorly, except about suture and sides. Flanks of *prosternum* with conspicuous striae throughout, but many of the striae oblique even near the apex. Metasternum finely transversely striated; towards the sides and the episterna with conspicuous punctures. Front *femora* distinctly dentate; claws each with a wide basal appendix. Length, 8 mm.

Hab.—Northern Territory (J. P. Tepper). Type (unique), I. 3412.

An unusually distinct species. The medio-frontal impression of the head is unusually deep, although rather narrow.

RHYPARIDA ALCYONE, n. sp.

Flavo-castaneous, some parts slightly paler than others.

Head shagreened; with moderately dense, small punctures, becoming sparse in front; with a narrow medio-frontal impression feebly, or not at all, connected with base; clypeus with fairly large and moderately dense punctures, posterior suture not defined, but sometimes with distinct punctures. Eyes fairly large and widely separated. *Prothorax* at base rather more than twice as wide as the median length, all angles armed; with sparse and very small punctures. *Elytra* suboblong, not much but distinctly wider than prothorax; with rows of rather large punctures, becoming smaller towards, but still very distinct to apex; interstices with small scattered punctures. Flanks of *prosternum* with a few oblique basal striae. *Femora* edentate; claws bifid. Length, 5½-7½ mm.

Hab.—Northern Territory: Darwin (G. F. Hill's No. 150, and H. H. D. Griffith); Queensland: Cairns (A. M. Lea); North-western Australia: Roebuck Bay (C. French). Type, I. 3078.

This and the two following species I cannot structurally distinguish from *limbatipennis* (of which two more or less constant forms are already known), but the strikingly different plan of colouration warrants them being described as new, even if the names eventually have to be regarded as varietal. The present one is distinguished from *piceitarsis* (apart from colour) by its larger size, slightly more convex form, larger eyes, and more shining prothorax. From the description of *pallida* by its larger size and entirely pale antennae and under-surface. From the pale form of *dimidiata* its elytral punctures distinct to apex will readily distinguish it. One specimen from Cairns has the knees, tibiae, and tarsi rather deeply infuscated, and the elytral punctures rather lightly so. Another from Roebuck Bay (63) has the elytra and appendages (knees excepted) conspicuously flavous.

RHYPARIDA MEDIORUFA, n. sp.

Pl. vi., fig. 47.

Reddish-castaneous; elytra (a wide sutural space, sometimes disappearing posteriorly, and the margins excepted) and most of legs black or blackish; parts of under-surface and of antennae infuscated (sometimes rather feebly so), palpi flavous. Length, 6-7½ mm.

Hab.—Queensland: Coen River (W. D. Dodd). Type, I. 3063.

The six specimens before me have almost identical markings, except that on some of them the pale sutural portion of the elytra is continued to the apex, whilst on others it terminates before same.

RHYPARIDA ATRA, n. sp.

Pl. vii., fig. 96.

Black; parts of head, and occasionally other parts, obscurely reddish or testaceous; palpi and a variable portion of antennae flavous. Length, 6-7 mm.

Hab.—Queensland (British Museum, from F. P. Dodd), Charters Towers (Blackburn's collection), Cairns district (E. Allen and A. M. Lea). Type, I. 3088.

In colour like the black variety of *dimidiata*, but elytral punctures and striae quite conspicuous to apex. Some specimens (except for the labrum, antennae, and palpi) are entirely black, but on the majority of them the clypeus and a space behind same (usually triangularly encroached upon in the middle) and the claw joints are usually paler, occasionally also the elytral epipleurae and parts of the under-surface are very obscurely diluted with red.

---

(63) This and the Cairns specimen are the only ones I have seen from outside of the Northern Territory, where the species appears to be abundant.

RHYPARIDA DECIPIENS, n. sp.

Pl. vii., fig. 98.

Black; parts of head, of under-surface, and of appendages more or less obscurely diluted with red, palpi paler.

Head with fairly dense but rather small punctures, becoming coarser and more irregular on clypeus; with a short, medio-frontal impression. Eyes large, separation slightly more than the transverse diameter of an eye. *Prothorax* about twice as wide as the median length, angles acutely armed; with fairly dense but not very large punctures, becoming larger towards sides. *Elytra* distinctly wider than prothorax, shoulders prominent; with rows of rather large punctures, becoming slightly smaller posteriorly; interstices with numerous minute punctures, and in places with a few large ones. Flanks of *prosternum* with some feeble striae about base and near coxae. *Femora* edentate; claws almost simple. Length, 7½-8½ mm.

Hab.—Queensland: Coen River; North-western Australia: Derby (W. D. Dodd), King Sound (Blackburn's collection); Northern Territory: Adelaide River (British Museum). Type, I. 3065.

In appearance close to the preceding species, but the eyes considerably larger, punctures distinctly larger, and the claws very different. On the present species each claw-joint is terminated by two claws, at first sight appearing simple, but really each with a feeble appendix; on the preceding species each claw-joint is terminated by four distinct claws, of which, however, the median ones are much smaller than the others. The elytral punctures and striae readily distinguish from the black variety of *dimidiata*. The eyes are almost as large and the prothoracic punctures are almost as coarse as on *punctulata*; but the edentate femora will distinguish from the black variety of that species. On several of the interstices (but on all the specimens before me always on the second, fourth, and sixth) there are some very large punctures, quite as large as in the adjacent rows, and by this character alone the species may be readily distinguished from all the other black Australian species of the genus. The labrum, basal joints of antennae, and the palpi are not dark on any of the specimens before me, but except for these no parts are conspicuously pale, and at first glance the whole insect appears to be deep black. On two specimens the medio-frontal impression is connected with the base of the head by a feebly elevated line; on two others by an impunctate, but not elevated, line.

RHYPARIDA CARTERI, n. sp.

Of a dingy castaneous-brown, some parts obscurely infuscated.

Head rather wide, median line well defined in front, but not traceable to base; behind clypeal suture with minute punctures; clypeus with rather dense and fairly large, deep punctures. *Prothorax* about thrice as wide as long, sides rather strongly rounded; with numerous punctures of moderate size, but becoming sparse and small towards all margins. *Elytra* wide, with unusually wide lateral margins; with regular rows of fairly large punctures, becoming smaller but in well-defined striae posteriorly. Flanks of *prosternum* not striated. *Femora* edentate: claws bifid. Length, 7½-8 mm.

Hab.—Northern Queensland (British Museum and H. J. Carter). Type, I. 3620.

A large depressed species, rendered very distinct by the wide elytral margins; each of these from the shoulder almost to the apex is considerably wider than any of the adjacent interstices. In general appearance it is fairly close to some of the more depressed forms of *brevilineata*, but on that species the elytral margins, even at their widest, are decidedly narrower than any of the adjacent interstices. In the table it is associated with *alcyone* and *fuscosuturalis*, but it is not at all close to either of those species, and the elytral margins should prevent it from being confused with any other of the genus: the elytra are widest at about one-third from the apex, but if the margins were excluded they would be widest across the shoulders. Of the three specimens under examination one has vague remnants of prothoracic spots, but on the others even these are not traceable.

RHYPARIDA CAERULEIPENNIS, n. sp.

Brassy or brassy-blue; head, prothorax, scutellum, and parts of under-surface shagreened; elytra deep metallic-blue, labrum, palpi (black tips excepted), basal portion of antennae and legs (black tarsi excepted) more or less reddish.

Head with feeble and indistinct punctures, becoming larger, but still of small size, on clypeus; medio-frontal impression short, disconnected, and usually rather feeble. Eyes of moderate size, prominent and widely separated. *Prothorax* at base not twice the median length, but fully twice across middle, all angles armed; with sparse and minute punctures. *Elytra* suboblong, considerably wider than prothorax; with rows of large punctures, becoming smaller towards, but distinct to apex, and coarser about basal fourth (except towards suture) than elsewhere; interstices with sparse and minute punctures. Flanks of *prosternum* with remnants of striation about base and near coxae. *Femora* edentate; claws bifid. Length, 5½-6½ mm.

Hab.—Queensland: Somerset (L. M. d'Albertis), Bowen (Aug. Simson), Charters Towers (Blackburn's collection), Cairns (E. W. Ferguson, H. Hacker, and A. M. Lea); North-western Australia: Roebuck Bay (C. French); Northern Territory: Port Essington (British Museum). Type, I. 3055.

In general appearance strikingly close to *uniformis*, but prothorax shagreened, head with the median impression very faint, and the clypeus not distinctly separated from the face. These differences are quite conspicuous on many specimens of both species in the Museum; but the colours and variations of same are so similar as to suggest a doubt of their specific distinctness. The head, prothorax, and scutellum are usually brassy-black or brassy-green, but occasionally shade off to deep-blue or even purple; the elytra are usually of a deep blue, but occasionally are almost black or deep purple. Three specimens have brassy elytra with a vague greenish gloss, and have the legs (and one even has the antennae) almost entirely dark. One of the British Museum specimens was labelled (without doubt in error) as from South Australia.

RHYPARIDA FLAVOLATERA, n. sp.

Pl. vi., fig. 48.

Black; labrum, sides, and apex of elytra, palpi, base of antennae, and legs (knees and tarsi excepted) flavous.

Head shagreened; with dense and rather small punctures, becoming much larger on clypeus; medio-frontal impression short and deep, connected with the (usually well-defined) clypeal suture. Eyes of moderate size and widely separated. *Prothorax* about once and one-half as wide as long, all angles distinctly armed; with small and not very dense punctures on disc, becoming slightly larger towards sides. *Elytra* suboblong, considerably wider than prothorax; with rows of large punctures, becoming much smaller posteriorly; interstices with very sparse and minute punctures. Flanks of *prosternum* without distinct striation. *Femora* edentate; claws bifid, the inner ones acute and much smaller than the others. Length, 5¼-6 mm.

Hab.—North-western Australia (Blackburn's collection), Roebuck Bay (C. French and H. H. D. Griffith); Queensland (British Museum, from Aug. Simson). Type, I. 3066.

The twenty-four specimens before me all agree in the pale border to the elytra being continuous throughout, but at the apex it dilates so that the major portion of the apical slope is occupied, and it is sometimes irregularly advanced for a short distance on each side of the suture. The pale borders are suggestive of approximation to *fulvolimbata*, but the black has nowhere a metallic gloss, the prothoracic punctures although small are quite distinct, and the elytral punctures are considerably smaller than on that species, especially posteriorly. There are two specimens in the Macleay Museum, labelled as from New South Wales.

RHYPARIDA TRIANGULIFERA, n. sp.

Pl. vii., fig. 49.

Flavo-castaneous; palpi flavous, elytra with a large basal blotch and a triangular post-median one, meso- and metasternum (wholly or in parts) and legs (femora, except knees, and claw-joints excepted) black.

Head, with rather small and sparse punctures, more sharply defined but not much larger on clypeus; with a short, deep, medio-frontal impression, touching the (rather ill-defined) clypeal suture, and connected with the base by a feebly elevated line. Eyes fairly large, prominent, and widely separated. *Prothorax* across middle about twice the median length, all angles armed; with minute, scattered punctures. *Elytra* suboblong, distinctly wider than prothorax; with rows of fairly large punctures, becoming much smaller posteriorly; interstices with sparse and minute punctures Flanks of *prosternum* striated about base and near coxae. *Femora* edentate; claws bifid. Length, 5¾-6½ mm.

Hab.—Queensland: Cairns district (E. Allen and A. M. Lea). Type, I. 3421.

It will possibly be eventually found that this form represents but one of a trimorphic (perhaps polymorphic) species I cannot structurally distinguish it from *maculicollis* or *mastersi*, and yet the markings of all three forms are quite sharply defined, and although there are numerous forms of each before me (54) I have seen none with intermediate markings.(55) But in any case it seems desirable (as Blackburn considered with *mastersi*) that the present form should have a name. The large basal blotch extends on each side to about the sixth or seventh row of punctures, with the hind angles acute; the post-median triangle is of irregular shape and usually has a short sutural extension towards the basal blotch. On two specimens it is obscurely connected with the basal blotch along the suture; one of these specimens has a feeble spot on each side of prothorax, the other has three conspicuous ones, of which the median one is much larger than the others;

---

(54) The majority of the specimens were taken by myself in the Cairns district, but as I saw none *in cop.*, no record was made at the time.

(55) In *limbatipennis* and *herbacea* there are at least two sharply defined forms, and in *dimidiata* at least three.

but seven others have the prothorax immaculate. The elytral punctures become very small posteriorly, but on some specimens each is surrounded by a watery ring, so that, at a glance, the punctures appear to be large and of almost even size throughout, but when the elytra are examined so that the apical punctures are clearly visible they are seen to be very small.

RHYPARIDA MEDIOVITTATA, n. sp.

Pl. vii., figs. 50 and 51.

Flavous; head and prothorax reddish-flavous, the latter with a conspicuous black spot on each side; each elytron with a black irregular vitta, extending along the middle from near the base to about the apical fourth, the two sometimes connected by a narrow fascia across the basal fifth; tarsi and knees usually slightly infuscated.

Head shagreened; with very indistinct punctures, except on clypeus, where they are fairly dense and sharply defined: with a narrow medio-frontal impression, touching the rather ill-defined clypeal suture. Eyes large, prominent, and rather widely separated. *Prothorax* across middle almost thrice the median length, all angles armed: with minute and not very dense punctures. *Elytra* parallel-sided to beyond the middle, distinctly wider than prothorax; with rows of punctures of moderate size, becoming very small posteriorly; interstices with very minute punctures. Flanks of *prosternum* feebly striated about base only. *Femora* edentate; claws feebly appendiculate. Length, 4-4½ mm.

Hab.—North-western Australia: Fortescue River and Derby (W. D. Dodd); Northern Territory: Batchelor (G. F. Hill's No. 237). Type, I. 3072

A small and very conspicuously marked species; each vitta sends out an inner spur at the basal third, and on three of the twelve specimens before me these meet at the suture: on these specimens also the suture is narrowly infuscated. Of the other species with the prothorax conspicuously bimaculate, *maculicollis* is much larger, more convex, elytral markings very different, and hind femora minutely dentate. *Brevilineata* is also much larger, and with very different elytral markings. The claws, except on very close examination, appear to be quite simple.

RHYPARIDA INSULICOLA, n. sp.

Pl. vii., fig. 52.

Flavous; some small spots on upper-surface and parts of under-surface black.

Head with well-defined punctures at sides of base, absent between there and clypeal suture, and dense and well-defined on clypeus; with a narrow and deep medio-frontal impression, touching the well-defined clypeal suture. Eyes of moderate size, prominent, and widely separated. *Prothorax* about twice as wide as the median length, front angles unarmed; with coarse punctures, not very dense on middle, but crowded on sides. *Elytra* parallel-sided to beyond the middle, very little wider than prothorax at its widest; with rows of large punctures, rapidly becoming smaller, and almost disappearing before apex. Flanks of *prosternum* rather strongly striated about base, and moderately about middle, but not elsewhere. *Femora* minutely dentate; claws bifid. Length, 3¾ mm.

Hab.—Darnley Island (H. Elgner). Type (unique), I. 3451.

The lateral punctures of the prothorax are coarser than on any other species in the Museum. On the type the elytral punctures appear to be very large, even to the apex, but this is due to watery rings: at the base they are really large, but posteriorly (as impressions) they almost disappear. There is a small black spot on each side of prothorax, on each elytron there is a postmedian one on the third interstice, one on each shoulder, and some irregular ones on the sides behind same, on each femur there is a small spot, the sterna (except part of prosternum) and base of abdomen are blackish.

RHYPARIDA VARIIPENNIS, n. sp.

Pl. vii., figs. 53 and 54.

Black and flavous.

Head more convex than usual: with fairly dense, well-defined punctures, becoming slightly denser and larger on clypeus; medio-frontal impression feeble or absent, clypeal suture feeble. Eyes comparatively small, prominent, and widely separated. *Prothorax* not much wider than long, sides subangulate at basal third, front angles unarmed: with dense and large punctures, smaller in middle than elsewhere. *Elytra* briefly suboblong, much wider than prothorax: with rows of large punctures almost, or quite, disappearing posteriorly. Flanks of *prosternum* with dense and large punctures *Femora* minutely dentate; notches of hind tibiae rather feeble, claws each with a large basal appendix. Length, 2-2¼ mm.

Hab.—Melville Island (W. D. Dodd). Type, I. 3099.

The conspicuous punctures on the prosternum, although not unique in the genus, together with the small size, should render the species easy of recognition. There are two specimens in the Museum, differing strikingly in the colours of elytra, but quite evidently belonging to but one species. They have the head and prothorax black, with a brassy or brassy-green gloss, under-surface black, antennae flavous at base, but infuscated outwardly, and legs entirely flavous. On one the elytra are entirely black, except for a small, isosceles, flavous triangle on each side of base. On the other the elytra are flavous, except for a vitta on each side (invisible from above), the suture and a curved mark attached to same near base; it appears also to have rows of very large punctures distinct to apex, but posteriorly this is due to waterlogging; from certain directions the punctures, as impressed points, are seen to be almost or quite absent, exactly as on the darker specimen.

A specimen from Adelaide River (in the British Museum) has the elytra red, except for a narrow black sutural vitta.

RHYPARIDA HALTICOIDES, n. sp.

Black, upper-surface with a coppery gloss; appendages, labrum, and sometimes the throat and tip of abdomen, red.

Head with rather dense and sharply-impressed punctures of moderate size, becoming larger and more crowded on clypeus; with a narrow medio-frontal impression, touching the very feeble clypeal suture. Eyes large, prominent, and widely separated. *Prothorax* across middle more than twice the median length, sides strongly rounded, front angles almost unarmed; with dense and not very small, sharply-defined punctures. *Elytra* parallel-sided to beyond the middle, distinctly but not much wider than prothorax; with rows of large punctures, suddenly becoming much smaller, some rows completely absent from apical slope; interstices with sparse and very minute punctures. Flanks of *prosternum* with dense and rather coarse punctures, in places becoming longitudinally confluent. *Femora* minutely dentate; claws each with a stout basal appendix. Length, 3½-4¼ mm.

Hab.—New South Wales: Illawarra, Gosford, Kurrajong, Blue Mountains, Mount Irvine (H. J. Carter), Mount Kosciusko (W. E. Raymond), Jenolan (J. C. Wiburd), Armidale, Mount Victoria, Sydney, National Park (A. M. Lea), Nowra (Macleay Museum); Victoria: Gisborne (H. H. D. Griffith from G. Lyell), Nelson, Castlemaine, Dividing Range, Victorian Alps (Blackburn's collection): South Australia: (Macleay Museum), Kangaroo Island (J. G. O. Tepper). Type, I. 3399.

In general appearance, at first glance, strikingly like many species of *Arsipoda* of the *Halticides*.

Two specimens from the Blue Mountains (E. W. Ferguson) possibly belong to this species, but they are rather more convex and have the punctures on the flanks of the prosternum much less numerous (quite absent from some parts), the prothorax with the punctures smaller and with the sides rather angularly dilated in the middle. In the table they would be placed with the dark variety of *dimidiata*, but they are much smaller than any specimen of that species in the Museum, and the punctures on the pronotum are more distinct: their convexity is about midway between that of *halticoides* and of *dimidiata*.

RHYPARIDA TROPICA, n. sp.

Pl. vii., figs. 55-57.

Colours and markings variable.

Head rather convex; with rather small and not very dense punctures, becoming larger and denser on clypeus; medio-frontal impression narrow and rather feeble, or moderately well defined. Eyes fairly large, very prominent, and widely separated. *Prothorax* across middle about twice the median length, front angles unarmed; with dense and fairly large punctures, smaller on disc than elsewhere. *Elytra* short, at base not much wider than prothorax, sides feebly dilated to beyond the middle; with rows of fairly large punctures, becoming smaller towards but quite distinct to apex; interstices more convex than usual, the one starting from each shoulder rather acutely elevated for some distance; a vague depression across basal third, but not extending to sides or suture. Flanks of *prosternum* feebly striated about base. *Femora* very minutely dentate; claws bifid. Length, 2½-3 mm.

Hab.—Queensland: Bundaberg (Blackburn's collection), Innisfail (C. French), Cairns district (Macleay Museum and A. M. Lea), Torres Straits (H. J. Carter). Type, I. 3098.

A small, wide, and extremely variable species, with rather coarse punctures. The elytra appear to have a longitudinal carina starting from each shoulder and continued for a short distance backward, parallel with the margin. The species is so abundant, and there are so many forms of it, that it is not desirable to describe more than some of these; from the first the type has been selected.

1. Head and prothorax reddish, elytra flavous, a large subtriangular infuscate blotch about scutellum, and a large rounded similarly-coloured median one on each elytron, obscurely connected with the side; under-surface more or less infuscated, appendages flavous. This form graduates by slight steps to Form 2 on the pale side, and to Form 3 on the dark side.

2. Entirely pale-flavous; head, prothorax, scutellum, and a space about same slightly more reddish than other parts. Some specimens have the legs and abdomen almost white.

3. Entirely black, except that the head is sometimes of a dull-red, with a subtriangular infuscate basal blotch, that parts of antennae are obscurely reddish, and that the palpi tarsi, and sometimes parts of the tibiae, are flavous.

Form 1 gradually changes to Form 3 by the basal and median spots of the elytra gradually becoming conjoined and dilating till they approach the sides and suture, these also becoming black. On an occasional specimen the prothorax is dull-red mottled with black; one specimen (except for parts of the appendages) is entirely of a lurid red.

RHYPARIDA OVATA, n. sp.

Blackish-brown; head, front margin of prothorax, shoulders and apical fourth of elytra (suture excepted), and appendages castaneous or flavous.

Head with rather small and sparse punctures on clypeus, almost or quite absent elsewhere; medio-frontal impression rather feeble and disconnected. Eyes moderately large, prominent, and widely separated. *Prothorax* more than thrice as wide as long, apical angles unarmed; with fairly numerous punctures of rather small size, and becoming smaller on disc. *Elytra* short, not much wider than prothorax, sides feebly dilated to beyond the middle; with rows of punctures of moderate size, becoming much smaller posteriorly. Flanks of *prosternum* feebly striated about base. *Femora* edentate; claws bifid. Length, 2¼ mm.

Hab.—Northern Queensland (Blackburn's collection). Type, I. 3101.

In markings almost identical with some specimens of the preceding species, but with very much smaller punctures, prothorax more transverse, elytra without the conspicuously thickened post-humeral interstice, striation of elytra very feeble, even towards the base, and absent posteriorly, although the rows of punctures may be traced almost to the apex. At a glance the outlines appear to be perfectly oval. A specimen in the Macleay Museum (from Cairns) differs in being larger (3 mm.), head and apex of prothorax darker, and the dark elytral markings almost disconnected, so that there appears to be a large scutellar blotch (continued some distance along suture), and a large blotch on each side.

RHYPARIDA BASIPENNES, n. sp.

Reddish-castaneous; elytra (extreme base flavous and apex obscurely diluted with red excepted) and abdomen black; antennae with basal joints pale, the others blackish; legs more or less flavous, tarsi somewhat darker.

Head with minute and ill-defined punctures, more sharply defined, but still very small, on clypeus; medio-frontal impression rather feeble, touching the ill-defined clypeal suture, and connected with the base by a very feeble elevation. Eyes comparatively small, prominent, and widely separated. *Prothorax* shagreened and impunctate, or almost so; base about twice the median length, sides rather strongly rounded and widest near base, front angles acutely armed. *Elytra* slightly wider than prothorax, sides feebly dilated to beyond the middle; with rows of fairly large punctures, becoming much smaller posteriorly. Flanks of *prosternum* lightly striated, but not to apex. *Femora* very feebly dentate; claws bifid. Length, 4-4½ mm.

Hab.—Northern Queensland (Blackburn's collection and H. J. Carter), Cairns district (A. M. Lea). Type, I. 3071.

The degree of infuscation of the legs is not alike on any two of the five specimens before me: on one the metasternum is somewhat infuscated in the middle; on another parts of the elytral epipleurae and of the abdomen are diluted with red; the scutellum is blackish. On the type, the striation of the prosternum is fairly distinct, although not continuous; but on the others it is so faint (except at base) that it could fairly be regarded as absent. On four of the specimens extremely small femoral teeth are present, but the other appears to be without such.

RHYPARIDA SEMINIGRA, n. sp.

Reddish-castaneous; elytra, mesosternum, metasternum, and abdomen black, antennae slightly infuscated towards the apex.

Head almost impunctate, even on clypeus; with a short medio-frontal impression, touching a well-defined clypeal suture, the latter straight in middle, but towards each side obliquely directed to hind margin of eye. Eyes fairly large, very prominent, and widely separated. *Prothorax* across middle about twice as wide as median length, sides strongly rounded, front angles unarmed; with small and rather dense punctures. *Elytra* scarcely wider than middle of prothorax; with rows of fairly large punctures, rapidly becoming smaller, and (except that a few small, irregularly-placed ones are present) disappearing from apical slope. Flanks of *prosternum* non-striated. *Femora* scarcely visibly dentate; claws bifid. Length, 3-3½ mm.

Hab.—Queensland: Coen River (W. D Dodd). Type, I. 3070.

A small species, with colours somewhat as in the preceding one, but prothorax considerably larger in proportion, shining, with small and dense but distinct punctures, apical angles unarmed, sides more strongly rounded, scutellum red, elytra entirely dark, and metasternum, as well as the abdomen, black. A second specimen (from Mackay, R. E. Turner) agrees so well with the type in all details of colour and sculpture, except of the head,(56) that I am averse to regarding it as distinct; its head, however, is shagreened, has small but distinct punctures, becoming larger and fairly dense on clypeus, medio-frontal impression feeble and disconnected, and posterior suture of clypeus absent. The type is a male, the Mackay specimen a female, but the differences mentioned are probably not sexual.

RHYPARIDA SEMIFLAVA, n. sp.

Flavous; elytra (extreme base obscurely diluted with red), scutellum, mesosternum, metasternum, and abdomen black; apical half of antennae infuscated.

Head with fairly dense and well-defined punctures about base, becoming sparser towards front, and then somewhat coarser and denser on clypeus; medio-frontal impression rather shallow. Eyes not very large, very prominent, and widely separated. *Prothorax* about twice as wide as long, front angles lightly armed; with moderately dense and rather small punctures, becoming slightly denser and larger on sides. *Elytra* across shoulders somewhat wider than prothorax, sides dilated to beyond the middle; with rows of fairly large punctures, becoming much smaller towards but traceable to apex. Flanks of *prosternum* striated only about extreme base. *Femora* very minutely dentate; claws bifid. Length, 3 mm.

Hab.—Queensland: Mount Tambourine (A. M. Lea). Type (unique), I. 3069.

A small species, in general appearance close to the two preceding ones, and in shape almost intermediate, but distinguished from both by the much more distinct cephalic punctures, and the rows of elytral punctures more distinct to the apex. From *basipennis* it is further distinguished by the more shining prothorax, with more rounded sides, and very distinct punctures, and by its black metasternum. From *seminigra* by the prothorax with more conspicuous punctures, the front angles armed, and by the black scutellum.

RHYPARIDA HUMERALIS, n. sp.

Pl. vii., fig. 58.

Piceous-brown, sometimes almost black; head, shoulders, and apical third of elytra (except suture) and appendages of a dingy-flavous or testaceous.

Head with scarcely visible punctures, except on clypeus, where they are small but sharply defined; medio-frontal impressions short and disconnected; clypeal suture distinct at sides, scarcely (or not at all) traceable across middle. Eyes large, prominent, and widely separated. *Prothorax* shagreened and feebly, or not at all, punctate: more than twice as wide as long, front angles distinctly armed. *Elytra* moderately long, distinctly wider than prothorax, sides feebly dilated to beyond the middle; with rows of fairly large punctures, becoming much smaller posteriorly. Flanks of *prosternum* feebly striated on base and sides, but not to apex. Hind *femora* very minutely dentate; claws bifid. Length, 2¾-3¼ mm.

---

(56) Its elytra, however, are slightly dilated to beyond the middle, and on the type they are parallel-sided; probably a sexual difference.

Hab.—Queensland: Coen River (W. D. Dodd), Cairns district (H. Hacker and A. M. Lea). Type, I. 3423.

In size, colour, and general appearance strikingly like some forms of *apicalis*, but prothorax shagreened and with scarcely traceable punctures, sides of prosternum not longitudinally striated, and eyes more prominent and less close together. On some specimens the pale apical portion of elytra is quite sharply defined, occasionally appearing as an oblique spot on each side; on others it is very little darker than the adjacent parts; on the latter specimens the shoulders are also not well defined, and the legs and antennae are of a rather dingy colour, the antennae are sometimes of uniform colour, but are usually darker towards the apex. Some small specimens are almost entirely of a smoky-brown. One specimen (the only one from the Coen River) is of a lurid reddish-brown, with the scutellum, elytra, and all the appendages of a dingy-flavous. On some specimens the prothorax appears to be entirely without punctures, but on others some very small ones are to be seen.

RHYPARIDA VAGANS, n. sp.

Flavo-castaneous; labrum, tips of palpi, apical half of antennae, and tarsi darker; elytra flavous.

Head wider than usual; with small and fairly distinct punctures at sides of base and on clypeus, sparser or absent elsewhere: medio-frontal impression short and disconnected, clypeal suture sometimes traceable at sides, but not across middle. Eyes small and widely separated. *Prothorax* about thrice as wide as long, front angles unarmed: punctures moderately dense and small, becoming denser and larger on sides. *Elytra* short, not much wider than prothorax, sides feebly dilated to beyond the middle: with rows of unusually small punctures, disappearing (except close to suture and sides) on apical slope. Flanks of *prosternum* striated about base, but not elsewhere. *Femora* scarcely visibly, if at all, dentate; claws feebly appendiculate. Length, 3-4 mm.

Hab.—Queensland: Cunnamulla (H. Hardcastle); New South Wales: Wentworth (Miss Cudmore): Victoria (H. H.

D. Griffith), Sea Lake (J. C. Goudie, Nos. 384 and 610); South Australia (Macleay Museum): Quorn, Port Lincoln (Blackburn's collection); Western Australia: Geraldton (Blackburn's collection, from W. Meyrick). Type, I. 3125.

The shape of the prothorax and its punctures to a certain extent are somewhat as on *commutabilis*, but the head (including the eyes) and the elytra and legs are very different. The apical parts of the antennae vary from but feebly infuscated to deep black, the legs are occasionally almost black, the metasternum and abdomen (or the former only) are sometimes darker than the rest of the under-surface; one specimen has a very dark (but not black) head. The elytral punctures are unusually small, and with the striae scarcely defined, even at the base. The punctures on the heads of the smaller specimens are sometimes rather more defined than on the larger ones, and on a few specimens there are fairly distinct ones between the clypeus and base.

RHYPARIDA PALLIDULA, n. sp.

Flavous; apical half (or more) of antennae infuscated.

Head with fairly dense and distinct punctures, denser and larger on clypeus, and sparser and smaller between eyes than elsewhere; medio-frontal impression rather feeble, and feebly connected with base by a scarcely elevated line. Eyes rather small, very prominent, and widely separated. *Prothorax* about twice as wide as the median length, front angles very feebly, or not at all, armed; with rather dense and somewhat small punctures, becoming more crowded and larger on sides. *Elytra* rather short, not much wider than prothorax; with rows of fairly large punctures, becoming much smaller but not disappearing posteriorly. Flanks of *prosternum* transversely striated about base. *Femora* very minutely dentate; claws bifid. Length, 3 mm.

Hab.—Queensland: Mount Tambourine (A. M. Lea). Type, I. 3431.

In general appearance close to the pallid form of *tropica*, but longer and less compact, elytra with less conspicuous punctures and striae posteriorly, without the conspicuously thickened post-humeral interstice, etc. In size and shape it is fairly close to *semiflava*, but apart from the very different colours the prothorax is slightly different at apex, the elytra are not dilated posteriorly, and the punctures are not quite the same. Of the two specimens in the Museum one has the under-surface of uniform colour, but on the other parts of the metasternum and of the abdomen are infuscated.

RHYPARIDA FUSCOSUTURALIS, n. sp.

Flavous; suture and apical two-thirds of antennae infuscated.

Head with fairly dense but small punctures about base, becoming scarcely visible between eyes, but moderately large and numerous on clypeus; medio-frontal impression narrow and well-defined. Eyes fairly large, prominent, and widely separated. *Prothorax* about thrice as wide as long, all angles distinctly armed; punctures rather small but sharply defined. *Elytra* not much wider than prothorax, sides gently rounded; with regular rows of fairly large punctures, becoming slightly smaller posteriorly; interstices gently convex throughout, with minute scattered punctures. Flanks of *prosternum* vaguely striated about base. *Femora* very minutely dentate; claws bifid. Length, 3¾ mm.

Hab.—Queensland: Mount Tambourine (A. M. Lea) Type (unique), I. 3114.

In some respects close to *commutabilis*, but slightly more elongate, and prothoracic punctures somewhat larger than on most specimens of that species; but readily distinguished by the elytra; on these the punctures, and striae in which they are placed, are quite strong to the apex, being scarcely less pronounced there than they are at the base.

RHYPARIDA BIVITTICOLLIS, n. sp.

Of a rather dingy-flavous; a rather wide vitta on each side of middle of prothorax, scutellum, a wide sutural vitta becoming narrow posteriorly, most of sterna, sides of abdomen, and apical portion of antennae more or less deeply infuscated.

Head rather narrow, median line distinct but short and entirely free; punctures minute, except on clypeus, where they are distinct and moderately dense. *Prothorax* not twice as wide as long, sides strongly rounded, all angles armed; with numerous rather small but distinct punctures on disc, becoming much smaller towards sides. *Elytra* subovate, apex rather acute; with regular rows of not very large punctures, both punctures and rows becoming feeble posteriorly. Flanks of *prosternum* very smooth. *Femora* edentate; claws bifid. Length, 3 mm.

Hab.—Queensland: Cairns. Type (unique), in Macleay Museum.

In the table associated with *tenuis*, but not very close to that species, from which it differs in having prothorax wider, with conspicuous punctures and black vittae, the elytra wider, with wide sutural vitta and different punctures, etc. Its general outlines are something like those of *clypeata* on a small scale. At first glance it appears to belong to *bimaculicollis*, but the non-striated flanks of prosternum are at once distinctive. The dark parts of the prothorax, if a rather narrow pale median line was excluded, would be almost perfectly circular, the dark sutural marking commences suddenly near the base, and disappears at the tip.

RHYPARIDA TENUIS, n. sp.

Reddish-castaneous; elytra flavous, suture, scutellum, mesosternum, metasternum parts of palpi, most of antennae, knees, and tarsi black or infuscated.

Head with scarcely visible punctures except on clypeus, where they are rather large and dense, and posteriorly form an irregularly transverse or bisinuate row; medio-frontal impression feeble (sometimes absent). Eyes of moderate size, not very prominent, and widely separated. *Prothorax* not quite twice as wide as long, front angles armed; with sparse and minute punctures. *Elytra* elongate, distinctly wider than prothorax; with rows of fairly large punctures, becoming much smaller posteriorly. Flanks of *prosternum* vaguely obliquely striated about base. *Legs* rather long; femora edentate; claws bifid. Length, 4-4½ mm.

Hab.—Queensland: Normanton (R. Kemp), Mackay (R. E. Turner), Cairns (E. Allen and A. M. Lea), Rockhampton, Bundaberg (Lea). Type, I. 3102.

The colours as described are those of the great bulk of the specimens under examination, but on many the abdomen is black or infuscated; two specimens, however, have the mesosternum, metasternum, scutellum, and suture not much darker than the adjacent parts. The rows of punctures on the elytra are sometimes traceable to apex, but on many specimens the apical slope is entirely without rows, although even on such specimens a few minute scattered punctures are usually to be seen. The species is attracted in abundance to lights.

RHYPARIDA MINUSCULA, n. sp.

Pale reddish-castaneous, elytra paler; antennae (except towards base) more or less infuscated.

Head with scarcely visible punctures, except on clypeus, where they are fairly numerous and distinct, although small; medio-frontal impression short, feeble, and disconnected; clypeal suture distinct only on sides. Eyes of moderate size, prominent, and widely separated. *Prothorax* about twice as wide as long, front angles rather acutely armed; with minute and not very dense punctures. *Elytra* rather narrow, not much wider than prothorax; with rows of not very large punctures, becoming much smaller posteriorly. Flanks of *prosternum* striated about base only. Hind *femora* minutely dentate; claws bifid. Length, 3¼-3¾ mm.

Hab.—Queensland: Cairns district (E. Allen, H. Hacker, and A. M. Lea). Type, I. 3432.

Allied to the preceding species and similarly attracted in abundance to lights, but consistently smaller and paler, prothorax somewhat wider, and with distinctly larger (although small) punctures, apical angles distinctly armed, and somewhat stouter antennae. On some specimens most of the body and appendages are flavous, some parts paler than others; on an occasional specimen the abdomen is rather deeply infuscated.

RHYPARIDA COMMUTABILIS, n. sp.

Pl. vii., fig. 59.

Flavous; apical half (or more) of antennae infuscated.

Head with fairly dense and distinct punctures throughout, but becoming larger and denser on clypeus; medio-frontal impression short and deep, feebly (or not at all) connected with base by a scarcely elevated line. Eyes fairly large, very prominent, and widely separated. *Prothorax* about thrice as wide as long, front angles obtusely armed, usually with a shallow impression on each side; with moderately dense and small punctures, becoming somewhat larger on sides. *Elytra* very little wider than prothorax; with rows of punctures of moderate size, becoming smaller towards but quite distinct to apex. Flanks of *prosternum* striated only about extreme base. *Femora* edentate; claws bifid. Length, 3½-4¼ mm.

Hab.—North Queensland (Blackburn's collection), Cairns district (E. W. Ferguson, E. Allen, and A. M. Lea), Mungar Junction, Magnetic Island; New South Wales: Tweed and Richmond Rivers, Glen Innes, Wollongong, Gosford, Galston (Lea), Nowra, Kurrajong, Sydney; Victoria (Macleay Museum). Type, I 3103.

The colour except for (sometimes, especially in the smaller specimens, even including) the antennae, is usually entirely flavous, some parts slightly paler than others; but frequently on the larger specimens the head at base, and the clypeus, are deeply infuscated; such specimens also frequently have a blackish spot on each femur. Occasionally there is a vaguely infuscated spot on each side of the prothorax, and rarely there is one on the suture near the base; in two specimens, however, there is a fairly large sutural blotch near the base. One specimen has various parts of both surfaces obscurely infuscated; and some parts of the lower-surface are occasionally deeply infuscated. One specimen has the prothorax almost of a blood-red, with a large black spot towards each side, each elytron with three obscure spots (one near middle of base and two across middle), and head with a median spot, the sterna are distinctly darker than the abdomen. On the majority of specimens the median impression of the head is decidedly strong, but it varies through moderately defined or rather light to altogether absent. The front tibiae of the male are decidedly more inflated about the apex than is usual in the genus. In Northern Queensland the species appears to attain its maximum size about Cairns, all the specimens south of that locality being on the smaller scale, although some specimens from Galston are slightly larger than the smallest Cairns ones.

CLEORINA.

On this genus, which is unsatisfactorily close to *Rhyparida*, the four hind tibiae are lightly notched near apex, and the elytra are about as wide as long, and much wider than the prothorax.

CLEORINA PULCHELLA, Lef.

A beautiful little insect, common in many of the coastal districts of Northern Queensland. The elytral markings are frequently as on the type, but frequently the second spot, except at the suture and sides, covers almost the entire apical two-thirds; rarely the elytra are entirely of a coppery-green. There is a minute projection on each side of the prothorax at about the basal third, but it is invisible from most directions

CLEORINA PURPUREA, n. sp.

Pl. vii., fig. 63; pl. viii., fig. 105.

♂. Purple; antennae black, parts of palpi obscurely reddish.

Head with well-defined but not very large and somewhat unevenly distributed punctures; clypeus subquadrate, sides distinctly carinate. Antennae with second joint stouter and distinctly shorter than third, fifth to eleventh stouter than the third and fourth. *Prothorax* not twice as wide as the median length, sides rather strongly rounded, but near middle with a small dentiform projection, front angles also armed; with minute scattered punctures on disc, but becoming larger on sides. *Elytra* subquadrate, considerably wider than prothorax, with an obtuse swelling between each shoulder and suture, and with rows of punctures. Flanks of *prosternum* smooth in front, finely wrinkled elsewhere. *Abdomen* feebly depressed in middle of apex. *Femora* stout, hind pair very feebly dentate, the others not at all: middle tibiae rather lightly notched near outer apex, the hind ones still more lightly notched; basal joint of front tarsi moderately inflated. Length, 3-3¼ mm.

♀. Differs in being more compact, eyes somewhat smaller, abdomen more convex, all femora edentate, and basal joint of front tarsi distinctly smaller.

Hab.—Queensland: Cairns district (Macleay Museum and A. M. Lea). Type, I. 3433

Readily distinguished from *pulchella* by its larger size, and very different colours and punctures. The head and prothorax sometimes have a vague greenish gloss; the under-surface and legs are sometimes quite distinctly purplish or purplish-green, but sometimes have but little metallic gloss. The elytral punctures are fairly large, and in conspicuous rows on a shallow depression at the basal fourth; posteriorly, although still in rows, they become very minute, on the apical slope they are almost invisible, except for a few in the sub-sutural stria (the only one on the slope). The tooth on the hind femora of the male is very small, but quite distinct from certain directions, but the others are edentate.

SCELODONTA.

The species (57) of this genus have the middle and hind tibiae notched near apex, but the hind ones much less conspicuously so than in *Rhyparida;* from which genus also it may be distinguished by all the femora being dentate.(58) There is a curious groove behind each eye.

SCELODONTA SIMONI, Baly.

palmerstoni, Blackb.

Pl. viii., fig. 106.

There are in the Museum four specimens of this species from the Northern Territory. Two of these bear the late Rev. T. Blackburn's label, "*simoni*, Baly," and one "*Scelodonta* (?) *simoni* Baly, var.(?) *palmerstoni*, Blackb."; the latter evidently the one he commented (59) upon as having "some rather conspicuous golden spots." These spots, however, appear to be due to grease, or perhaps abrasion, diminishing the gloss of certain parts. On the fourth specimen (recently received from Mr. G. F. Hill, and taken on Melville Island), evidently in perfect condition, and agreeing in sculpture and clothing with the others, the spotting is not traceable. There are also specimens in the Macleay Museum from North-western Australia.

---

(57) I am only acquainted with Australian ones.

(58) Baly described *simoni* as having the four hind femora armed, but he evidently overlooked the small tooth on each of the front ones.

(59) Proc. Linn. Soc., N.S.W., 1888, p. 1479.

SCELODONTA BREVIPILIS, n. sp.

Pl. viii., fig. 107.

♂. Brassy or bronzy; sides of prothorax (the disc glabrous) and the elytra with very short and sparse pubescence, under-surface, legs, and head with somewhat denser and rather longer pubescence, becoming dense and almost of a snowy whiteness on flanks of metasternum; tibial notches rather densely ciliated.

Head with dense and rather small punctures; with three conspicuous impressions connected with clypeal suture—a median one vanishing on the forehead and a deep groove curving round each eye. Antennae moderately long, second joint stouter and shorter than third. *Prothorax* about as long as wide, sides evenly rounded; with dense punctures, many of which are transversely confluent. *Scutellum* parallel-sided, apex feebly produced in middle. *Elytra* much wider than prothorax, shoulders prominent, sides behind them feebly decreasing in width; with rows of rather large punctures, becoming small posteriorly, the interstices with small punctures and feebly wrinkled. *Abdomen* with fifth segment slightly shorter than third and fourth combined. *Femora* stout, middle pair strongly, hind pair moderately, front pair lightly dentate; tibiae with several acute ridges, middle pair rather suddenly bent downwards at middle; basal-joint of front tarsi rather strongly inflated. Length, 4-5 mm.

♀. Differs in being somewhat stouter, abdomen more convex, with the apical segment somewhat shorter, middle tibiae less curved, and basal joint of front tarsi much smaller.

Hab.—Queensland: Cape York (W. D. Dodd), Bundaberg (Blackburn's collection), Cooktown (C. French), Kuranda (H. J. Carter from G. E. Bryant), Cairns district (Macleay Museum, E. Allen, E. W. Ferguson, and A. M. Lea), Brisbane (H. Hacker), Wide Bay, Endeavour River; New South Wales: Darling River (Macleay Museum). Type, I. 3283.

Structurally very close to *simoni*, but the elytral clothing very much shorter, pronotum glabrous in middle, and middle tibiae very different. Even the antennae are more or less metallic on the basal half; many specimens have two bluish or purplish spots on each elytron, one between the shoulder and suture, the other a short distance behind the first; some specimens are more conspicuously metallic than others, and an occasional specimen is almost of a golden red. The elytra have several shallow depressions in the vicinity of the shoulders, and the punctures there are larger than elsewhere.

TOMYRIS.

This genus is a very unsatisfactory one to deal with, despite the great beauty of many of the species. In general appearance many of them are extremely like many of the smaller ones of *Edusa*, but from that genus they are readily distinguished by the notched four hind tibiae, although the notches are sometimes very feeble. But with a little experience many of the species may be recognized at a glance to belong to *Tomyris*, by the clothing and prothoracic punctures. The character of the convexity or concavity of portion of the prosternum by which Chapuis and Lefevre placed the two genera in widely separated groups of the subfamily I believe to be quite unreliable; and it is certainly very unsatisfactory.

There are now before me many hundreds of specimens, including all those described or commented upon by the late Rev. T. Blackburn, except some types (60); and also including many taken *in cop.* by myself and so marked. Of these latter some species have both sexes green, some have both brassy, and some have the male green and the female brassy. The antennae also may or may not vary in colour sexually. Structurally and in clothing some of these are so much alike that it is often difficult (I believe in many cases it is for all practicable purposes impossible) to decide as to whether a particular specimen belongs to one with the sexes similar or different in colours. That the sexes of several species have been described as distinct is almost certain: I have, for instance, repeatedly seen specimens of *viridula* (male) *in cop.* with *proxima* (female). There are in the Museum (and I have seen more in other collections) many unmated specimens belonging to species that are close to but distinct from *viridula*, that I have passed over without describing as, except where they possess very distinctive features, it is undesirable to describe species allied to it, without having positive information as to the correct mating of the sexes.

All the species of the genus have the four hind tibiae notched near the outer apex, and all have the upper-surface more or less densely clothed; the clothing is frequently dense and short, often as in *rasa*, of which Blackburn remarked: "The shortness and comparative coarseness of the pubescence in this species suggests the idea of a hairy surface that has been closely shaved." Two species, however, have been referred to the genus whose upper-surface is glabrous and tibiae not notched; but these (*paradoxa* and *minor*) I believe to belong to *Cleptor*, and have commented upon them under that genus.

On the head there is a small shining space close to each antenna, and there is generally another on the forehead; or the latter may be lengthened into a short carina; occasionally it is completely absent, but its absence appears to be individual rather than specific.

---

(60) All the species are represented.

Under the genus Chapuis described the femora as being slightly swollen, but in an enlarged figure(61) of the hind leg of *pulchella* (the typical species of the genus) the femur is shown as having a fairly large subapical tooth. Lefevre also described the femora as moderately incrassated, and made no mention of a tooth. I have seen no species with dentate femora, but must presume (on account of the figure) that *pulchella* has such, and consequently that it is unrepresented in the Museum, but all the other known species are there represented.

The antennae are usually long and thin, but on the females are usually much (or, at any rate, distinctly) shorter than on the male, and on some species they differ sexually in width; but the relative lengths of the joints are seldom of use in distinguishing allied species. The sides of the prothorax and its proportions in comparison with the elytra are also of but little use.

The sexual differences are frequently very pronounced in colour, and the male has usually distinctive characters on the abdomen; on the male the basal joint of the two or four front tarsi is often slightly larger than on the female, but it is seldom conspicuously much larger, as in so many other genera of the subfamily.

The following table is of the new species only: —

A. Prothorax not impressed across middle.
a. Prothoracic pubescence conspicuously parted in middle ... ... *mediana*
aa. Prothoracic pubescence not so parted.
b. Elytral pubescence entirely very short and more or less depressed.
c. Elytra much more conspicuously narrowed posteriorly than usual in genus ... ... *eiburdi*
cc. Elytra normally narrowed posteriorly.
d. Size large ... ... *longa*
dd. Size very small ... ... *queenslandica*
bb. Elytral pubescence not entirely short and depressed.
e. Prothoracic punctures large and sharply defined in front ... ... *apicicollis*
ee. Prothoracic punctures smaller and crowded throughout.
f. Size very small ... . *dumbrelli*
ff. Size considerably larger.

---

(61) Pl. cxix., fig. 2*a*.

g. Antennae with four or five apical joints conspicuously tipped with black ... ... *picticornis*
gg. Antennae with eleventh joint only so tipped ... ... *aureoviridis*
AA. Prothorax transversely impressed across middle.
B. Elytral pubescence not entirely short and depressed.
h. Depressed pubescence dense.
i. Size very small ... ... *tantilla*
ii. Size considerably larger.
j. Longer hairs inconspicuous.
* Male bright metallic-green ... ... *soror*
** Male not green ... ... *illaetabilis*
jj. Longer hairs in conspicuous rows.
* Prothoracic punctures not individually distinct ... ... *tepperi*
** Prothoracic punctures individually distinct ... ... *sublaeta*
hh. Depressed pubescence sparse, and long hairs more or less conspicuous.
k. Conspicuously narrower than usual in genus ... ... *exilis*
kk. Of normal width.
l. Prothoracic punctures crowded and not individually sharply defined ... *femoralis*
ll. Prothoracic punctures, at any rate in front, sharply defined.
m. Prothoracic impression nowhere well defined ... ... *inconspicua*
mm. Prothoracic impression conspicuous on each side of middle.
n. Prothorax almost as long as wide *compacta*
nn. Prothorax decidedly transverse *villosa*
BB. Elytral pubescence entirely short and usually depressed.
C. A conspicuous shining ridge in front of impression ... ... *sculpticollis*
CC. Without such a ridge.
D. Punctures on prothorax mostly sharply defined and individually distinct.
o. Hind tibiae unusually wide, with the notch unusually deep ... ... *incisa*
oo. Hind tibiae of normal width and with the notch much smaller.
p. Of large size.
* Elytra not shagreened ... ... *insignis*
** Elytra shagreened ... ... *fugitiva*
pp. Of small size.
q. Punctures in prothoracic depression less sharply defined than elsewhere ... ... *aerata*
qq. Punctures there quite as distinct as elsewhere.
r. Elytral pubescence suberect ... *irrasa*
rr. Elytral pubescence depressed *foveiventris*

DD. Punctures in prothorax too crowded to be individually distinct, except occasionally about apex.
E. With a costiform elevation behind each shoulder ... ... *pulcherrima*
EE. Without such.
F. Transverse impression of prothorax feeble.
s. Median line of prothorax distinct when viewed obliquely ... ... *curnowi*
ss. Median line not traceable . . *similis*
FF. Transverse impression distinct
G. Size above average ... ... *distributa*
GG. Size decidedly small.
H. Unusually narrow, with longer antennae and legs than usual ... ... *gracilicornis*
HH. Not as H.... ... ... *aurea*

NOTES ON TABLE.

A. On *apicicollis* the prothorax is not transversely impressed, but towards the base the punctures are more crowded than elsewhere, and it is possible that on some specimens a vague depression would be visible. If placed in AA it would fall beside *villosa*, whose prothoracic impressions are very different.

AA. The impression is sometimes very feeble, but usually may be clearly seen, on account of the punctures there being denser than elsewhere; it is seen most clearly from an oblique direction; on several species (including *insignis*, one of the most distinct of the genus) the impression, although not distinct in the actual centre of the disc, is represented by a distinct remnant each side of same.

h. *Soror* might have been referred to the group with elytral pubescence entirely short, but as on each of the thirteen specimens before me a few upright hairs are to be seen it has been placed here.

TOMYRIS PUSILLA, Lef.

The description of this species is extremely short, and would apply to the females of many species of the genus; but in the late Rev. T. Blackburn's collection there was a specimen from Perth so identified. I have taken the same species at the Swan River, Bridgetown, and Pinjarrah, but all these are larger (2½-3 mm.) than the type (2 mm.). I doubt if it is more than a western representative of *viridula*, and like that species the legs of its females (the only sex known (62)) are sometimes infuscated in parts. Its prothorax is transversely impressed and elytral clothing short, but without the curious appearance as in *rasa*.

---

(62) On one card before me a small green male is mounted with a female, but not marked as having been taken *in cop*. It differs from the male of *viridula* in being smaller, transverse impression of prothorax more distinct, an interrupted ridge in front of same; and punctures considerably larger.

TOMYRIS ELEGANTULA, Lef.

impressicollis, Blackb.

Typical specimens of this species may be readily distinguished from most species by the conspicuous golden or coppery gloss on the apical portion of elytra, especially along the suture, but the gloss is sometimes rather feeble and is occasionally absent. The size is also variable. Both sexes (63) are green, but the male has only the tip of the eleventh joint of antennae black, whereas the female has many of the joints more or less deeply infuscated, with the median joints usually darker than the subapical ones, although the tip of the eleventh is black.

The species, as such, was unknown to the late Rev. T. Blackburn when he described *impressicollis*, but subsequently he identified a Tasmanian specimen as *elegantula*, and this specimen agrees well with two of his own co-types. These have a distinct coppery gloss on the apical portion of the elytra, although in his table they were mentioned as "entirely green." There are many Australian specimens in the Museum with the gloss quite as pronounced as on Tasmanian ones. The species is widely distributed and common in Tasmania, Victoria, and South Australia.

TOMYRIS FOVEOLATA, Baly (formerly *Terillus*).

This species is readily distinguished from all others of the subfamily by the elytra; these have the interstices elevated, shining, and impunctate, or almost so, but between them are rows of large shallow foveae, varying in shape from irregularly rounded to quadrate or oblong, and usually each separated from the adjoining ones by a transverse ridge at each end; each is also densely punctate and has very short pubescence. The sex of the type was not noted, the two before me (taken at the Swan River by Mr. Carter) are males, and each has a large fovea on the apical segment of abdomen.

The species was referred to *Terillus* by Baly, but each of the four hind tibiae has a conspicuous notch near the outer apex, and the species is quite obviously a *Tomyris*.

TOMYRIS INSIGNIS, n. sp.

Pl. viii., fig. 156.

♂. Bright metallic golden-green, elytra brassy about apex, labrum and appendages flavous, but eleventh joint of antennae and tip of tenth infuscated. Upper-surface with extremely short and sparse pubescence, distinct only at apex of elytra.

---

(63) I have frequently taken specimens *in cop.*

Head with very dense, asperate punctures. Antennae passing middle of abdomen. *Prothorax* with sides gently dilated to near base, with a fairly distinct impression along middle, towards each side a distinct transverse impression, the two scarcely visibly connected across middle; punctures very dense, and subasperate, but mostly well defined. *Elytra* with dense, asperate punctures, and fine transverse rugae, striation distinct but not sharply impressed. *Abdomen* with a wide and deep apical fovea. Basal joint of four front *tarsi* elongate and dilated towards base. Length, 6 mm.

♀. Differs in being much larger (7½-8 mm.), of a beautiful golden-violet colour on the upper-surface, with the margins golden, abdomen upturned at middle of apex, and with a very feeble depression before same, antennae and legs somewhat shorter, and basal joint of four front tarsi narrowed from apex to base.

Hab.—New South Wales: Blue Mountains (H. J. Carter and E. W. Ferguson). Type, I. 3622.

An extremely beautiful species, the female considerably larger than any previously described one, being quite as large as many of the large species of *Edusa*, but with the conspicuous tibial notches of *Tomyris*. On the under-surface the clothing is white, and moderately dense in places, but the middle of the abdomen glabrous, margined in the males by some longer hairs. The types were taken *in cop.*; a second female (returned to Mr. Carter) is more of a golden-red than the other, and the sides of its prothorax and elytra and the scutellum are golden-green.

TOMYRIS FUGITIVA, n. sp.

♀. Metallic-green; labrum and appendages (except tip of antennae) flavous. Rather densely clothed with very short subdepressed pubescence, becoming longer, denser, and depressed on under-surface.

Head with very dense, subasperate punctures. Antennae extending to hind coxae. *Prothorax* with almost evenly rounded sides, with a vague remnant of a transverse impression towards each side; punctures slightly better defined than on head. *Elytra* rather coarsely shagreened and with vague remnants of striation. Tip of *abdomen* upcurved. Length, 6¼ mm.

Hab.—New South Wales. Type (unique) in Macleay Museum.

A large green species, the general sculpture much as in *rasa*. In general appearance it is somewhat like a very large specimen of *laeta*, but the labrum is much longer than in that species, being less than twice as wide as long, instead of more than twice as wide as long, the elytral clothing is less depressed and not quite so dense, and the tibial notches are less conspicuous. Viewed at right angles to the derm, the upper-surface appears to be green or bluish-green, but from an oblique direction it is conspicuously purplish; and when appearing purplish the pubescence also disappears. I have referred it to AA, in the table, as vague remnants of the transverse prothoracic impression may be seen, but regarding it as belonging to A, it might be associated with *mediana*, as from certain directions the prothoracic pubescence of one side appears to disappear exactly at the middle, but this is due more to the fugitive colour rather than to a distinct parting, as on *mediana;* it is also much larger than that species. Regarding it as belonging to *aa*, it would be associated with *longa*, which is considerably narrower and otherwise very different. Short as is the clothing on the elytra, it is still shorter on the head and prothorax.

TOMYRIS MEDIANA, n. sp.

♂. Bright golden-green; labrum and appendages (black tip of antennae excepted) flavous. Densely clothed with short, silken pubescence, on the prothorax conspicuously parted in the middle.

Densely covered with small asperate punctures, less clearly defined on elytra than on head and prothorax. *Antennae* thin, slightly passing tips of elytra. Fifth segment of *abdomen* with a rather large median fovea. Length, 3 mm.

♀. Differs in being larger (4 mm.), of a beautiful golden-red, only the tip of clypeus green, antennae shorter and abdomen more convex and non-foveate.

Hab.—New South Wales: Sydney (A. M. Lea), Hillgrove (C. Hardcastle). Type, I. 3473.

The prothorax of both sexes, when viewed obliquely, appears to have a conspicuous median line, due to the parting of the pubescence, and this character will readily distinguish it from most species of the genus. The sexes are strikingly different in appearance, but the types were taken *in cop.* The male is much like *laeta* in miniature. The derm of the female is much the colour of that of *rasa*, but the punctures are much smaller.

TOMYRIS APICICOLLIS, n. sp.

♀. Brassy; labrum and appendages (black tips to some of the antennal joints excepted) flavous. Moderately densely pubescent, with elytra, in addition, with fairly numerous, longer erect hairs.

Head with three small shining spaces; punctures very dense but well-defined. Antennae moderately stout, extending to second segment of abdomen, sixth to tenth joints dilated at apex of each. *Prothorax* with somewhat larger punctures than on head, on apical portion sparse and more sharply defined. *Elytra* with a vague depression behind each shoulder; punctures about base much as on head, becoming smaller and less crowded posteriorly. Length, 2½-3½ mm.

Hab.—South Australia (Blackburn's collection): Mount Lofty, Kangaroo Island (J. G. O. Tepper); Victoria: Monbulk and Emerald (H. H. D. Griffith from E. Jarvis). Type, I. 3243.

In some respects close to *aenea*, but prothorax not transversely impressed. The prothoracic punctures, which are unusually conspicuous in front, from certain directions appear to each have a small central pit, from other directions each appears to have a feeble median elevation. On the majority of species of the genus the prothoracic punctures are more or less similar, but being more crowded their individual sculpture is less distinct. An occasional specimen has a purplish gloss.

Two males before me probably belong to this species: they are of a brassy-green, becoming of a vivid-green on head and almost purplish towards apex of elytra; the abdomen is less convex, there is a feeble transverse impression on the fifth segment, and the antennae (especially on the apical half) are thinner and extend to the tip of the abdomen.

TOMYRIS DUMBRELLI, n. sp.

Of a metallic but rather dull green, becoming brassy on parts of under-surface; labrum and appendages flavous-red, but many of the antennal joints tipped with black. Moderately clothed with very short pubescence, but elytra with some longer hairs scattered about.

Rather narrow; densely covered with small asperate punctures. *Antennae* rather thin, extending to about middle of abdomen. Length, 2¾ mm.

Hab.—New South Wales: Sydney (British Museum from C. Darwin), Galston (S. Dumbrell). Type, I. 3474.

A small dull-green species, smaller than *viridula*, and prothorax not transversely depressed. The prothorax, when viewed obliquely, appears to have an extremely feeble median parting of pubescence. The three specimens before me appear to be all males, as the abdomen, although without an apical fovea, is rather less evenly convex than is usual in females.

TOMYRIS PICTICORNIS, n. sp.

♂. Bright metallic-green, parts of under-surface brassy-green; labrum and appendages flavous, but tips of five apical joints of antennae conspicuously black. Rather densely clothed with short pale pubescence, elytra in addition with rows of short, suberect hairs, or thin setae.

With crowded asperate punctures, much smaller on elytra than on head and prothorax. *Antennae* long and thin, distinctly passing elytra. *Abdomen* with a conspicuous elevation in middle of second segment, apical segment rather strongly incurved to middle and transversely impressed. Length (♂, ♀), 4¼-4¾ mm.

♀. Differs in being of a beautiful golden-red, with under-surface almost entirely brassy, antennae shorter and slightly thinner, and abdomen simple and more convex.

Hab.—Western Australia: Mount Barker (R. Helms), Warren River (W. D. Dodd), King George Sound (Macleay Museum). Type, I. 3236.

Readily distinguished from other species of the genus by the curious abdomen of the male, and by the conspicuously black-tipped antennal joints.

TOMYRIS AUREOVIRIDIS, n. sp.

♂. Bright golden-green, in parts sometimes more golden than green, parts of under-surface brassy, labrum and appendages flavous, but tip of antennae black. Elytra densely clothed with short pubescence, and with a few rows of longer hairs, other parts more sparsely clothed.

With crowded asperate punctures, of uniform size on head and prothorax, but becoming smaller (although mostly well-defined) on elytra. *Antennae* thin, extending to tips of elytra. Fifth segment of *abdomen* with a rather large but shallow median fovea. Length, 3½-4½ mm.

Hab.—South Australia: Kangaroo Island (J. G. O. Tepper): Victoria: Birchip (J. C. Goudie); New South Wales: Jenolan (J. C. Wiburd). Type, I. 3256.

Like small specimens of *laeta*, but elytra with conspicuous rows of longer hairs; from *elegantula* and *viridula* the absence of a transverse prothoracic depression will readily distinguish it.

TOMYRIS LONGA, n. sp.

♀. Golden-green; labrum and appendages flavous. Densely clothed with short golden pubescence, becoming white on under-surface.

Elongate, densely covered with small subasperate punctures, smaller on elytra than on head and prothorax. *Antennae* long and thin. Length, 5½-6½ mm.

Hab.—Northern Territory: Darwin (N. Davies). Type, I. 3238.

A narrow species, with a peculiarly silken lustre. The elytra from certain directions have a vaguely ribbed appearance. A second specimen agrees in all details with the type except that it is of a beautiful golden-red, somewhat as in *rasa*, from which, however, it differs in many particulars. The antennae are damaged on both specimens, but at least the nine basal joints are entirely pale. They both have the fifth segment of abdomen strongly incurved to middle and transversely impressed; characters which would appear to be masculine, but from the type a lengthy ovipositor is protruding. It is the first species recorded from the Territory.

TOMYRIS WIBURDI, n. sp.

Of a dull bronze, the head brassy; labrum and appendages more or less of a dingy flavous, but eight apical joints of antennae more or less conspicuously infuscated or black, apical joint of palpi black, and femora and parts of tarsi distinctly infuscated. Densely clothed with short white pubescence.

Rather compact. Densely covered with small asperate punctures; smaller on elytra than on head and prothorax. *Antennae* not very thin, extending to about middle of abdomen. *Elytra* with apical third more conspicuously narrowed than is usual in genus. *Abdomen* with an impression extending across almost the entire fifth segment. Length, 3 mm.

Hab.—New South Wales: Jenolan (J. C. Wiburd). Type (unique), I. 3475.

A curious greyish-looking species, with distinctive elytra.

TOMYRIS QUEENSLANDICA, n. sp.

♀. Bronzy, under-surface almost black; labrum and appendages of a more or less dingy flavous or testaceous, but tips of palpi, tips of most of the antennal joints, and parts of legs more or less conspicuously infuscated or blackish. Rather densely clothed with short whitish pubescence, longer on elytra than elsewhere.

With crowded asperate punctures, more sharply defined (although somewhat smaller) on elytra than elsewhere. *Antennae* rather thin, extending to about middle of abdomen. Length, 2¾ mm.

Hab.—Northern Queensland (Blackburn's collection). Type (unique), I. 3268.

The elytra appear to have vague remnants of striation. The types of this species and of *similis* are the only specimens of the genus that I have seen from Queensland.

TOMYRIS TANTILLA, n. sp.

♂. Golden-green, becoming vividly green on head and brassy on parts of elytra; under-surface more or less brassy; labrum and appendages flavous, but tips of five or six apical joints of antennae blackish. Elytra with rather dense short pubescence, and with more or less regular rows of longer hairs; elsewhere more sparsely clothed.

Rather elongate. *Head* with crowded asperate punctures. Antennae long and thin, extending almost to apex of abdomen. *Prothorax* with a moderately distinct transverse subbasal impression, on which the punctures are much as on the head, but in front they are sparser and more clearly defined. *Elytra* with much smaller punctures. Fifth segment of *abdomen* with a small median fovea. Length (♂, ♀), 2-2¾ mm.

♀. Differs in being slightly larger and stouter, nearly always brassy, or at least with the elytra brassy, antennae shorter, abdomen more convex and non-foveate.

Hab.—Western Australia: Darling Ranges, Donnybrook, Beverley (A. M. Lea), Swan River (H. J. Carter), Fremantle (British Museum). Type, I. 3476.

The punctures on the elytra are so small, crowded, and ill-defined (in addition to being partially obscured by clothing) that most of the surface apears little more than shagreened. This species may be the real *pusilla;* but, till evidence to the contrary is forthcoming, it appears desirable to recognize, as that species, the one identified by Blackburn as such. The present species is certainly different to the one he so identified, but the original description would apply almost equally well to several species before me.

TOMYRIS TEPPERI, n. sp.

♀. Bronzy, or of a purplish-bronze, or brassy, tip of clypeus bright-green; under-surface more shining than upper, labrum and appendages (black tip of antennae excepted) flavous. Elytra with dense, depressed pubescence, and with almost regular rows of conspicuous hairs, elsewhere more sparsely clothed.

With dense asperate punctures, somewhat smaller on parts of elytra than on head and prothorax. *Antennae* thin, extending to about middle of abdomen. *Prothorax* with a rather vague, postmedian, transverse depression, and a still more vague longitudinal one. Length, 4-4½ mm.

Hab.—South Australia: Kangaroo Island (J. G. O. Tepper); Victoria: Birchip (J. C. Goudie's No. 126). Type, I. 3248.

With rather vague depressions on the prothorax as on *curnowi*, but readily distinguished from that species by the rows of conspicuous hairs on the elytra. The five specimens from Kangaroo Island are all females. Two specimens mounted, as sexes, on one card (but not marked as having been taken *in cop.)* were sent by Mr. Goudie; of these the female agrees perfectly with the Kangaroo Island ones, but the male (64) differs in being of a vivid golden-green, slightly smaller and narrower, prothorax somewhat longer, with more rounded sides, abdomen more convex and with a circular apical fovea; it differs from the male of *viridula* and of *elegantula* in being narrower and less compact, eyes rather more prominent, and longer hairs on elytra more conspicuous; the prothoracic punctures are much denser than on *exilis*, and it is rather more compact than that species; the long hairs on the elytra distinguish it from *foveiventris*.

TOMYRIS SUBLAETA, n. sp.

♂. Bright golden-green; labrum and appendages (tip of antennae excepted) flavous. Densely clothed with short depressed pubescence, the elytra in addition with rows of longer suberect hairs.

Head with very dense, subasperate punctures. Antennae long and thin. *Prothorax* with rather strongly rounded sides, with a shallow transverse depression on each side of middle; punctures slightly larger than on head and individually distinct. *Elytra* shagreened, but with punctures (although very small) moderately well-defined posteriorly. Fourth segment of *abdomen* flattened in middle, fifth with a wide shallow and somewhat irregular depression, the derm there darker than that of the adjacent parts. Length, 5½ mm.

Hab.—New South Wales: Blue Mountains (H. J. Carter). Type (unique), I. 3623.

Of the size and at first glance the appearance of *laeta*, but rather narrower, prothorax with transverse depressions and less crowded punctures, most of which are individually distinct, elytra with pubescence less dense and mixed with longer hairs, and notches of hind tibiae longer and shallower. Its much greater size readily distinguishes it from the males of *elegantula*, *viridis*, *soror*, etc. From *tepperi* it differs in being considerably larger, femora much stouter, and prothoracic punctures clearer; from the presumed male of that species it differs also in the abdominal fovea being wider, shallower, and of different shape.

---

(64) Its position in the table would associate it with *tepperi*, and I believe it belongs to that species.

TOMYRIS SOROR, n. sp.

♂. Bright metallic-green; labrum and appendages (black tip of antennae excepted) flavous. Densely clothed with short, golden pubescence, on the elytra some longer but not very conspicuous hairs scattered about.

Densely covered with small asperate punctures, rather smaller on elytra than elsewhere. *Antennae* long and thin, passing tips of elytra. *Prothorax* with transverse impression fairly distinct. Fifth segment of *abdomen* with a conspicuous median fovea with a central longitudinal elevation. Length, 4 mm.

♀. Differs in being larger (4¼-5¼ mm.), of a beautiful golden-red (sometimes brassy with a greenish gloss), antennae shorter, abdomen more convex, and fifth segment depressed but not foveate in middle.

Hab.—Tasmania: Hobart (British Museum, Blackburn's collection, and A. M. Lea), Mount Wellington (Lea); New South Wales: Blue Mountains (Blackburn). Type, I. 3240.

In general appearance close to *viridula*, but the sexes differ from the sexes of that species as follows:—Female.—More of a golden-red than bronzy (its colour approaches that of *rasa*), somewhat narrower and with the antennae considerably longer and thinner, the seventh joint decidedly longer than the eleventh (instead of equal to same) and quite five times as long as wide, instead of at most thrice as long as wide.(65) Male.—Slightly narrower, eyes slightly more convex, and antennae slightly longer and thinner. The differences in the antennae of the female render it certain that this species is quite distinct from *viridula*, and of both species I have taken pairs *in cop.*; but the males are so extremely closely allied that there will probably always be some difficulty in distinguishing them.

TOMYRIS ILLAETABILIS, n. sp.

♂. Bronzy-black; head brassy, becoming brassy-green on front of clypeus, labrum and appendages more or less flavous, but tips of several apical joints of antennae and base of hind tibiae infuscated, knees very feebly so. Moderately densely clothed with depressed, whitish pubescence, the elytra in addition with some longer hairs.

Head with dense, asperate punctures. Antennae long and thin. *Prothorax* with strongly rounded sides, a vague transverse depression towards each side, the two scarcely connected across middle; with very dense punctures, well defined only at apex. *Elytra* with a fairly distinct swelling on each side at base; with fairly dense, subasperate punctures. *Abdomen* with a shallow but fairly large apical fovea. Length, 4 (♀, 4¾) mm.

---

(65) To see the true proportions of the joint it must be viewed perpendicularly to its greatest width.

♀. Differs in being less metallic, head opaque, except that the clypeus is brassy in front, elytra piceous-brown, the under-surface somewhat paler,(66) abdomen non-foveate, more convex, and upcurved at apex, and antennae and legs somewhat shorter.

Hab.—Victoria: Sea Lake (J. C. Goudie's Nos. 710 and 713). Type, I. 3624.

Although in the table referred to B, and associated with *soror*, it is not at all close to that species; the longer hairs amongst the elytral pubescence are inconspicuous, and are clearly visible only from the sides on the apical slope on both specimens, but on the female from certain directions several rows of hairs stand out fairly conspicuously, even when the elytra are viewed from above. If, however, the species was referred to BB, it would be associated with *similis*, which is considerably smaller, more compact, and otherwise different. In general appearance it resembles *obscura*, but differs in being smaller and thinner, less coarsely sculptured, and the legs much paler. The tibial notches are rather feeble. The abdominal fovea of the male from some directions appears to have a feeble medio-longitudinal ridge, but from other directions this cannot be seen.

TOMYRIS EXILIS, n. sp.

♂. Bright metallic-green, prothorax and apical portion of elytra often more or less golden; labrum and appendages (tip of antennae and the claws excepted) flavous. Elytra with rather short pubescence, and some longer hairs scattered about, elsewhere sparsely clothed.

Head with dense, asperate punctures. Antennae thin, extending to tips of elytra. *Prothorax* with a transverse postmedian depression interrupted in middle; punctures on it much as on head, but elsewhere with somewhat larger, sparser, and more clearly defined ones. *Elytra* with distinct punctures throughout, at and about base they are much as on head, but smaller elsewhere. Fifth segment of *abdomen* with a conspicuous median fovea. Length (♂, ♀), 3¼-4½ mm.

♀. Differs in being somewhat wider; brassy, tip only

---

(66) There is but one specimen of each sex in the Museum, and the female is perhaps not quite mature.

of clypeus green; antennae shorter, many of the joints (including the upper-surface of the first) infuscated, abdomen more convex, the fifth segment lightly notched in middle of apex, and the legs somewhat thinner.

Hab.—Tasmania: Hobart (Blackburn's collection and A. M. Lea), summit of Mount Wellington, Huon River (Lea); Victoria: Dividing Range (Blackburn), South Wandin, Monbulk (H. H. D. Griffith, from E. Jarvis). Type, I. 3147.

A rather long and thin species whose sexes (I have taken specimens *in cop.)* vary in colour as those of *viridula*, but readily distinguished from that species by the much narrower form, prothorax with decidedly coarser punctures, and with the depression different. With the antennae concealed some males at first sight have a curious resemblance to some of the smaller species of *Lemidia* (of the *Cleridae*). Some males are decidedly more golden than green, but the females are all more or less brassy, or brassy-purple. One female has the base of the head and most of the prothorax of a beautiful purple. Another (in Mr. Griffith's collection) has the antennae conspicuously infuscated in the middle, but with the first and eleventh joints also partly infuscated.

TOMYRIS FEMORALIS, n. sp.

♀. Brassy or bronzy, under-surface with a vague greenish gloss; labrum, palpi, antennae (tips of several or but one joint excepted) and legs (middle of femora excepted) more or less reddish. Elytra with fairly numerous suberect hairs, mixed with not much shorter subdepressed pubescence, elsewhere with short pubescence.

Head with dense, asperate punctures. Antennae not very thin, not passing hind coxae, joints sixth to tenth dilated to apex. *Prothorax* with punctures as on head, except that they are even denser on a vaguely defined postmedian impression. *Elytra* with not very large but mostly sharply defined punctures, becoming smaller posteriorly, on parts of basal half sublineate in arrangement. Length, 3-3¼ mm.

Hab.—Western Australia: Mount Barker (R. Helms), Darling Ranges (A. M. Lea). Type, I. 3477.

A rather compact species, close to *antennata*, but elytra wider and distinctly brassy, and eyes smaller and more convex. The depression on the prothorax is very feeble, but as the punctures there present are more crowded than elsewhere it appears to be fairly distinct, especially as, on one specimen, the colour there is darker than on the adjacent parts. On the (two) specimens before me the femora are deeply infuscated in the middle, and on one of them the dark parts have a metallic

TOMYRIS INCONSPICUA, n. sp.

♀. Brassy; elytra of a somewhat purplish-bronze; under-surface darker, with a vague bluish gloss; labrum, palpi, most of antennae, knees, and tarsi more or less reddish. Elytra with sparse pubescence and sparse hairs scattered about, elsewhere with short and sparse pubescence.

Rather compact. *Head* more convex than usual; with crowded subasperate punctures. *Prothorax* with clearly defined punctures, becoming somewhat more crowded (but even there individually distinct) on a very vaguely defined postmedian depression. *Elytra* with rather small but clearly defined punctures on basal half, becoming smaller posteriorly. Length, 2¼ mm.

Hab.—Western Australia: Darling Ranges (A. M. Lea). Type (unique), I. 3478.

A small dark species, at first glance approaching *antennata*, but shape, clothing, antennae, and punctures all very different. The notches on the four hind tibiae are very feeble. The antennae are damaged on the type, but the fifth to tenth joints are each somewhat dilated towards and infuscated at apex, and the basal joint is dark on the upper-surface.

TOMYRIS VILLOSA, n. sp.

♂. Head and prothorax bright metallic-green (the prothorax sometimes golden); elytra bronzy, mesosternum, metasternum, and abdomen brassy or brassy-green; labrum and appendages (tip of antennae, base of femora, and the claws excepted) reddish-flavous. Upper-surface (more conspicuously so on elytra than elsewhere) with numerous long erect hairs scattered amongst rather sparse pubescence.

Head with crowded, asperate punctures. Antennae long and thin, extending almost to apex of abdomen. *Prothorax* with a moderately distinct postmedian depression, on which the punctures are much as on head; elsewhere they are sparser and more sharply defined, especially in front. *Elytra* with a depression behind each shoulder vaguely connected with base in two places; with numerous rather small sharply defined (but subasperate) punctures about base, becoming smaller posteriorly. Fifth segment of *abdomen* with a conspicuous median fovea. Four front *tarsi* with basal joint distinctly inflated. Length (♂, ♀), 3½-4 mm.

♀. Differs in being somewhat wider, bronzy, antennae shorter, considerably wider, and with most of the joints infuscated, prothoracic depression more conspicuous, abdomen more convex, fifth segment feebly impressed in middle, and basal joint of four front tarsi much smaller.

Hab.—Tasmania: Hobart (H. H. D. Griffith and A. M. Lea); South Australia (British Museum, from — Bakewell). Type, I. 3479.

A rather compact species. The long and conspicuously erect hairs, transverse depression on prothorax, and subbasal impression on each elytron should render distinct, in consequence of the subbasal impressions, the base appears to have four obtuse elevations, two (the smaller ones) of which are humeral. On one female the femora are black with the knees reddish, and the tibiae and tarsi are infuscated in parts. A male from New South Wales (Galston) has the elytra darker than on the type, and the prothoracic depression less conspicuous.

TOMYRIS COMPACTA, n. sp.

Bright metallic-green, becoming golden towards apex of elytra, under-surface brassy-green; labrum and appendages (tip of antennae and the claws excepted) flavous. Elytra with numerous fairly long erect whitish hairs, set amongst rather sparse and not very short pubescence, elsewhere sparsely clothed.

Head with dense asperate punctures. Antennae not very thin. *Prothorax* almost as long as wide, postmedian depression well defined on each side of middle, with a feeble longitudinal impression; punctures rather sparser and smaller than usual but well defined, becoming crowded on sides and on postmedian depression. *Elytra* with rather dense subasperate punctures of various sizes (but all rather small) about base, becoming much smaller posteriorly. Length, 3 mm.

Hab.—Western Australia: Darling Ranges (A. M. Lea). Type (unique), I. 3480.

A small, compact species; with prothorax decidedly longer than is usual in the genus; in general appearance it is close to the preceding species, but the prothorax is distinctly longer, and the eyes are more prominent. The abdomen of the type is rather strongly convex, and is without an apical fovea, so it is probably a female, despite its green colour.

TOMYRIS SCULPTICOLLIS, n. sp.

♂. Head of a vivid green, gradually altering to brassy at apex of elytra; under-surface more or less brassy, labrum and appendages (tip of antennae and claws excepted) flavous. Moderately densely clothed with short, depressed pubescence.

Head with dense, asperate punctures. Antennae long and thin. *Prothorax* with a conspicuous, shining, transverse, feebly elevated, median ridge, marking the front edge of the postmedian depression, this well defined; punctures rather larger and better defined than on head. *Elytra* with dense and rather small, but well-defined punctures, becoming smaller posteriorly. Fifth segment of *abdomen* transversely impressed. Length, 3 mm.

♀. Differs in being of a golden-red or golden-purple, with the clypeus green, antennae shorter, and abdomen more convex, with the fifth segment not transversely impressed.

Hab.—South Australia: Nuriootpa (J. G. O. Tepper). Type, I. 3242.

A minute and rather narrow species, readily distinguished from all previously described ones by the conspicuous ridge (interrupted in middle on one specimen) across prothorax. On each of the three specimens before me the small median shining space on the head is lengthened into a feeble carina, but it is probably not to be depended upon.

TOMYRIS INCISA, n. sp.

Pl. viii., fig. 108.

♂. Bright metallic-green; under-surface brassy-green, labrum and appendages (black tip of antennae excepted) flavous. Clothed with short, golden pubescence, denser on elytra than elsewhere.

Head with dense, asperate punctures. Antennae thin, extending to middle of abdomen. *Prothorax* with transverse depression rather well defined; the punctures on it much as on head, elsewhere they are mostly individually distinct. *Elytra* with smaller punctures than on head, becoming still smaller posteriorly. Fifth segment of *abdomen* with a conspicuous median fovea. *Legs* rather stout; four hind tibiae with subapical notch very conspicuous on each; four front tarsi with basal joint distinctly inflated. Length, 3-3¼ mm.

Hab.—Western Australia: King George Sound (Macleay Museum), Mount Barker (R. Helms), Darling Ranges (A. M. Lea). Type, I. 3481.

In general appearance like small specimens of *laeta*, but prothorax transversely depressed, and the four hind tibiae each much more conspicuously dilated towards the apex, and with the subapical notch unusually conspicuous, certainly much more so than on *elegantula*, *impressicollis*, *viridula*, or any other green species in the Museum. A specimen from Bridgetown is smaller (2¾ mm.) and thinner, but otherwise agrees with the type. The male of the Macleay Museum is more of a golden-green than the type, and is mounted on a card with a female(67); the latter is somewhat larger, tibial notches less conspicuous, and the upper-surface is entirely of a beautiful golden-red colour.

TOMYRIS FOVEIVENTRIS, n. sp.

♂. Bright metallic-green or golden-green; labrum and appendages (black tip of antennae excepted) flavous. Elytra with rather dense, short, depressed pubescence; sparse elsewhere.

Head with crowded, subasperate punctures. Antennae long and thin; distinctly passing elytra. *Prothorax* with postmedian depression distinct; with dense, clearly defined punctures. Elytra with small, densely crowded punctures, not much larger about base than elsewhere. Fourth and fifth segments of *abdomen* with a wide median fovea common to both. Length, 3 mm.

Hab.—South Australia: Mount Lofty (S. H. Curnow), Kangaroo Island (A. M. Lea). Type, I. 3436.

The prothoracic punctures are coarser than usual, and, although slightly smaller and more crowded in some places, are well defined throughout; they are alone sufficient to distinguish the species from the male of *viridula*. The abdominal fovea is not confined to one segment as on the males of most species of the genus

TOMYRIS AERATA, n. sp.

♂. Brassy, head metallic-green, labrum and appendages (one or more joints of antennae tipped with black excepted) flavous. Elytra rather densely clothed with short, depressed, whitish pubescence; sparser elsewhere.

Head with dense, asperate punctures. Antennae moderately thin, scarcely passing middle of abdomen. *Prothorax* with postmedian depression fairly distinct, and with punctures much as on head, elsewhere sparser, somewhat larger and usually sharply defined. *Elytra* about base with crowded and rather small punctures, becoming more crowded and smaller posteriorly. Fifth segment of *abdomen* with a small median fovea. Length (♂, ♀), 2½-2¾ mm.

♀. Differs in having the head brassy, antennae shorter and more infuscated, and in the abdomen.

Hab.—Tasmania: Huon River (a pair taken *in cop.*), Hobart (A. M. Lea). Type, I. 3482.

---

(67) The specimens are not marked as having been taken *in cop.*, but the late George Masters seldom so marked specimens that he had so taken.

Close to *gracilis*, but male as well as female with brassy elytra, prothorax with sides not subangularly dilated in middle (as they frequently are on that species), and depression and punctures not quite the same.

TOMYRIS PULCHERRIMA, n. sp.

♀. Bright golden-red; labrum and appendages (tip of antennae and claws excepted) flavous. Clothed with short, depressed, whitish pubescence, denser on elytra than elsewhere.

Rather narrow; with small, dense, asperate punctures, smaller on elytra than elsewhere. *Antennae* long and thin. *Prothorax* with transverse depression somewhat curved and very distinct. *Elytra* with a costiform elevation extending from each shoulder to middle, then abruptly deflected for a short distance towards the side, and then continued to about apical third, when it gradually disappears. Length, 2¾ mm.

Hab.—Western Australia: Swan River (A. M. Lea). Type (unique), I. 3483.

A small and very beautiful species, with well-marked features.

TOMYRIS CURNOWI, n. sp.

♀. Brassy or coppery; front of clypeus metallic-green, throat and parts of sterna greenish, labrum and appendages (tip of antennae and claws excepted) flavous. Clothed with short, depressed, whitish pubescence, denser on elytra than elsewhere, and on prothorax rather vaguely parted along middle.

With dense, asperate punctures, smaller on elytra than on head and prothorax. *Antennae* thin, extending to about middle of abdomen. *Prothorax* with transverse depression feeble, and with a still more feeble longitudinal one. Length, 4-5 mm.

Hab.—South Australia: Mount Lofty (S. H. Curnow), Yeelanna (W. A. Dorward), Lucindale (F. Secker).

The prothorax when viewed obliquely appears to have the pubescence parted in the middle, although not so distinctly as on *mediana;* from that species also it differs in being narrower, head and prothorax with considerably larger punctures, and prothorax with the transverse depression traceable.

A specimen from New South Wales (Jenolan, J. C. Wilburd) possibly represents a variety of this species, but as it has some longer hairs scattered amongst the elytral pubescence, it may belong to an, as yet, undescribed one.

TOMYRIS DISTRIBUTA, n. sp.

♂. Golden-red or brassy-red; head and scutellum metallic-green, labrum and appendages flavous, but tip of antennae and the claws black. Elytra densely clothed with short, pale pubescence, much sparser elsewhere.

With dense, asperate punctures, slightly larger on head than on prothorax, and becoming much smaller on elytra. *Antennae* thin, extending almost to tip of abdomen. *Prothorax* with transverse depression distinct. *Elytra* with a rather distinct depression on each side at about basal third, with vague remnants of striation. Apical segment of *abdomen* with a conspicuous median fovea. *Legs* stout; four hind tibiae very conspicuously notched; basal joint of each tarsus distinctly inflated. Length (♂, ♀), 4½-5½ mm.

♀. Differs in being more robust, only the front of the clypeus green, antennae shorter, abdomen more strongly convex, fifth segment flat in middle, and basal joint of tarsi smaller.

Hab.—Victoria: Dividing Range (Blackburn's collection); South Australia: Mount Lofty (J. G. O. Tepper); Tasmania: Hobart (H. H. D. Griffith and A. M. Lea). Type, I. 3237.

In general appearance close to *rasa*, but prothorax transversely depressed. Two females from the Blue Mountains are rather smaller than usual; one is of a beautiful golden-purple, but the other is of a rather dull purplish bronze.

TOMYRIS AUREA, n. sp.

♀. Golden, becoming golden-red about apex of elytra: clypeus more or less green in front, under-surface brassy; labrum and appendages (black tip of antennae excepted) flavous. Elytra densely clothed with short pale pubescence, clothing sparser elsewhere.

With dense, asperate punctures, smaller on elytra than on head and prothorax. *Antennae* thin, extending to about middle of abdomen. *Prothorax* with transverse depression distinct, and with remnants of a longitudinal one. Length, 2¾-3¼ mm.

Hab.—Western Australia: Mount Barker (R. Helms). Type, I. 3484.

Differs from the species identified as *pusilla* by the late Rev. T. Blackburn in being narrower, more golden in colour, elytral clothing distinctly shorter (much as on *rasa*), and punctures different.

TOMYRIS GRACILICORNIS, n. sp.

♂. Golden-red; clypeus golden, labrum and appendages (parts of antennae excepted) flavous. Densely clothed with short, depressed, pale pubescence.

Long and thin. With dense, asperate punctures, smaller on elytra than on head and prothorax. *Antennae* unusually long and thin. *Prothorax* with transverse depression distinct. Fifth segment of *abdomen* with a deep, transverse, median fovea. Length, 2¼-2⅔ mm.

Hab.—South Australia (Macleay Museum): Kangaroo Island. Type, I. 3260.

A minute, narrow species, with unusually long antennae and legs, and very prominent eyes; in colour it resembles *pulcherrima*. The four basal joints of antennae are entirely pale, the others are infuscated at their tips.

TOMYRIS SIMILIS, n. sp.

Brassy; under-surface brassy-green; labrum and appendages (tips of some of the antennal joints excepted) flavous. Rather densely clothed with short, pale, depressed, whitish pubescence.

Head with small, dense, asperate punctures. Antennae thin, extending to middle of abdomen. *Prothorax* with fairly distinct punctures about apex, but elsewhere much as on head; transverse depression feeble and ill-defined. *Elytra* with very dense and small punctures, a few more distinct (but not very large) towards base. Length, 3 mm.

Hab.—Queensland: Rockhampton (A. M. Lea). Type (unique), I. 3435.

From *queenslandica* differs in being more brassy, in the paler legs, in the elytral punctures being smaller, and those at apex of prothorax more distinct: the depression across the prothorax is also traceable, although rather feeble, but as the punctures are denser there than on the adjacent parts it is rendered fairly distinct. The small, shining spaces near the clypeus, in some lights, appear like small, beautifully purple spots.

TOMYRIS IRRASA, n. sp.

♀. Purple: scutellum and front of clypeus brassy-green, under-surface metallic-blue, becoming golden-green on flanks of prosternum; labrum and appendages flavous, but tips of palpi, of some joints of antennae, and the tarsi, lightly or moderately infuscated. With short, moderately dense, suberect pubescence, becoming extremely short on head and prothorax, but depressed on under-surface.

Head with very dense, subasperate punctures. Antennae not very thin, scarcely passing hind coxae. *Prothorax* scarcely wider at base than at apex, sides evenly rounded, with a shallow depression along middle, and a very shallow transverse one, scarcely traceable across middle; with very dense but well-defined punctures, each with a small central pit. *Elytra* roughly granulate-punctate, especially about base, and with remnants of striation. *Abdomen* strongly upcurved at apex, and with a shallow depression before same. Length, 5¼ mm.

Hab.—New South Wales: Clyde River. Type in Macleay Museum.

The prothoracic punctures, although crowded, are considerably larger than usual, each is more or less circular in outline, with short vertical walls and a central pit; somewhat similar ones are to be seen in other species—*e.g.*, *rasa*, *obscura*, *elegantula*, *viridis*, etc.—but being much smaller and shallower their sculpture is much less conspicuous than on the present species. The elytra, about the base, are also more roughly sculptured than is usual. The tibial notches are elongated and very ill-defined, those of the hind pair particularly so. In general appearance it is somewhat like a rough purplish *rasa*, but the prothoracic punctures are more than twice the size of those of that species, and the tibial notches are much more feeble. The transverse prothoracic depression is very feeble, but as it is traceable the species has been referred to AA of the table; if regarded as belonging to A, it could be readily distinguished from all the species of that group by the prothoracic punctures and elytral clothing; the latter, although short, is not depressed, and when viewed from behind appears to be in almost regular rows; it is a trifle longer at the base than elsewhere, but there are no hairs conspicuously longer than others.

EDUSA.

This genus was formally diagnosed by Chapuis in 1874, and divided by him into three subgenera. Blackburn in 1891 wrote, "I do not think that this subdivision can be maintained, at any rate unless a number of other subgenera be added," and certainly he referred to *Edusa* species (such as *singularis*,(68) *glabra*, and *angustula*) that could not be correctly referred to any of the three.

Regarding *chrysura* as the typical species, the features regarded as generic so gradually change that it is difficult to indicate dividing lines between subgenera. That the genus will be eventually again split up is almost certain, but I

---

(68) Now referred to *Geloptera*.

neither purpose doing this myself nor accepting Chapuis' subdivisions, although probably his names will eventually be maintained for restricted groups. In Blackburn's comments on the genus a character noted as being constant was "elytra transversely wrinkled at the sides." Nevertheless, he referred species to it whose elytral punctures are nowhere transversely confluent. He also referred to it various species whose femora were unarmed, or upper-surface glabrous, or prothorax with sides dentate in middle: all characters at variance with the original diagnosis. He also said that the sexes differed in the basal ventral segment. This is usually the case with the larger species, but many of the smaller ones have the basal segment exactly alike sexually; they usually have the apical segment more or less conspicuously impressed (usually with a circular fovea) in the male, and sometimes the preceding segment is impressed; but the female also occasionally has abdominal impressions.(69) On the larger species the labrum is usually conspicuously metallic; and many specimens of such species appear to have the upper-surface glabrous, but this is nearly always due to abrasion; in the lateral gutters of the elytra of such specimens there is generally to be seen a remnant of the clothing. On some of the large species the hind tibiae are curiously shaped at the apex in the male, but they are not notched as in *Tomyris*, *Rhyparida*, etc.; the excavation being on the apical slope, not before same, as on those genera. On each side of the head, usually just behind the clypeus, there is generally a small impunctate space, frequently highly polished, and usually a vague depression adjacent to same, but its presence or absence apears to be individual rather than specific, so I have usually not mentioned it in the descriptions. The antennae are long and thin and, apart from colour, of but little use in descriptions(70); in all the new species here described, unless stated to the contrary, the second joint is much shorter than the third, but the third varies from slightly shorter to slightly longer than the fourth.

In the accompanying table the sole consideration was to present the species known to myself in such a way that their identification might be hastened:—

---

(69) The male also usually has the abdomen conspicuously glabrous along the middle, whereas on the female it is usually clothed as the rest of the surface.

(70) They have, however, all been examined.

A. Non-metallic.
a. Front femora distinctly dentate.
* Hind tibiae of male dentate on lower-surface at about one-fourth from apex ... *suturalis*
** Hind tibiae not so armed ... ... *fusca*
aa. Front femora not at all, or scarcely visibly, dentate.
b. Upper-surface black.
c. Femora black and size minute ... ... *melanosoma*
cc. Femora reddish and size much larger ... ... *montana*
bb. Upper-surface not black (the suture sometimes excepted).
d. Elytra with clothing conspicuously darker on a zig-zag median space ... ... *ziczac*
dd. Elytral clothing more or less uniform.
e. Under-surface entirely pale ... ... *pallidiventris*
ee. Under-surface at least deeply infuscated in parts.
f. Prothorax with small punctures ... ... *araeoceroides*
ff. Prothorax with (for the genus) coarse punctures ... ... *blackburni*
AA. Metallic.
B. Labrum metallic, at least in middle.
g. Elytral clothing as dense towards suture as elsewhere ... ... *clypealis*
gg. Elytral clothing confined to sides and apex.
h. Femora reddish.
i. Punctures in middle of pronotum smaller than on sides ... ... *distincta*
ii. Punctures in middle scarcely smaller (although less dense) than on sides ... *varipes* (?)
hh. Femora black or metallic.
j. Front angles of prothorax rounded off ... ... *diversicollis*
jj. Front angles more or less acutely produced.
k. Summit of apical slope of hind tibiae of male with an acute overhanging tooth.
l. Middle of basal segment of abdomen of male conspicuously elevated and from the sides resembling a flap ... ... *abdominalis*
ll. Middle less elevated and not at all flap-like.
* Base of tibiae reddish ... ... *spinicollis*
** Base of tibiae metallic-green or brassy ... ... *monticola*
kk. Summit of apical slope with tooth not overhanging, or altogether absent.
m. Hind tarsi of male inserted at extreme tip of tibiae ... ... *minor*
mm. Hind tarsi not so inserted.

n. Distorted apex of hind tibiae of male co icuously concav on lowe
surface ... ... *chrysura*
nn. Distorted apex not so concave.
o. Hind tibiae of male conspicuously inflated before middle *germari* (
oo. Hind tibiae of male not so inflated .. *varians*
BB. Labrum more or less reddish.
C. Upper-surface entirely glabrous.
p. Femora metallic ... ... *plicata*
pp. Femora more or less reddish.
q. Elytra almost parallel-sided throughout.
* Sides of prothorax quite evenly rounded in middle *angustula*
** Sides of prothorax subangulate in middle ... ... *heterodoxa*
qq. Elytra with sides more or less evenly rounded.
r. Punctures on head small and sparse near base ... ... *glabra*
rr. Punctures on head of moderate size and dense.
s. Prothoracic punctures comparatively large.
* Of small size ... ... *chlorophana*
** Of large size ... ... *atrichia*
ss. Prothoracic punctures much smaller and denser.
t. Coarse elytral punctures nowhere confluent ... ... *podagrosa*
tt. Coarse elytral punctures in places confluent.
u. Clypeus with front margin straight ... ... *flavipes*
uu. Clypeus with front margin notched ... ... *viridimetalli*
CC. Upper-surface not entirely glabrous.
D. Front femora edentate or with armature extremely feeble.
v. Elytra glabrous ... . *marginicollis*
vv. Elytra not glabrous.
w. Elytral clothing with a maculate appearance.
* Second t of antennae much shorter than third ... ... *meyricki*
** Second nt almost as long as third and considerably stouter.
x. The ılate appearance due to short interrupted stripes of white
clothing ... ... *aureorufa*
The maculate appearance due to large patches where the clothing is
the same colour as the derm ... ... *submaculata*
ww. Elytral clothing not at all maculate in appearance.
y. Elytra with longer hairs arising from more or less depressed pubescence.
z. Very feebly metallic ... ... *melanopt ra*
zz. Conspicuously metallic.

a. Size minute ... ... *pavens*
aa. Size fairly large ... ... *tridens*
yy. Elytral clothing consists of uniform pubescence.
b. Femora with at least part of the apex dark.
c. Clothing quite exceptionally dense ... ... *ursa*
cc. Clothing not exceptionally dense.
d. Prothoracic punctures sharply defined ... ... *setipennis*
dd. Prothoracic punctures inconspicuous ... ... *viridifrons*
bb. Femora entirely reddish.
e. Elytra behind each shoulder with a depression divided into two parts by a non-depressed interstice.
f. Antennae not tipped with black ... ... *flavicornis*
ff. Antennae tipped with black ... ... *posthumeralis*
ee. Elytra without post-humeral depressions.
g. Elytra brassy along a wide median space, becoming green on sides *viridilatera*
gg. Elytra uniformly brassy or green.
h. Prothorax (and sometimes the elytra) brassy ... ... *viridipennis*
hh. Prothorax and elytra both green.
i. Prothoracic punctures distinct before abrasion ... ... *inermis*
ii. Prothoracic punctures indistinct before abrasion.
j. Greatest width of prothorax fully twice the median length ... *chlorion*
jj. Less than twice ... ... *evanescens*
DD. Front femora strongly or (at least from certain directions) conspicuously dentate.
E. Elytral clothing consists of scales.
k. Clothing on head also consists of scales ... ... *niveosquamosa*
kk. Clothing on head not scales.
l. Hind angles of prothorax acute ... ... *mira*
ll. Hind angles obtuse ... ... *griffithi*
EE. Elytral clothing consists of pubescence or setae.
F. Elytral clothing uniform pubescence.
* Pubescence erect ... ... *securigera*
** Pubescence depressed.
m. Pronotum subopaque.
n. Clypeus highly polished throughout, and with scarcely visible punctures *palpalis*
nn. Clypeus highly polished only on sides, and with dense and fairly distinct punctures ... ... *perplexa*
mm. Pronotum not subopaque.

o. Prothoracic punctures not readily traceable before abrasion ... ... *sericea*
oo. Prothoracic punctures distinct before abrasion.
* Elytral pubescence not uniformly distributed.
† Fifth segment of abdomen of male with a small circular fovea ... *zietzi*
†† Fifth with a wide shallow depression .. .. *rufilabris*
** Elytral pubescence uniformly distributed.
p. Head with a strong median line to base ... ... *impressic*
pp. Head at most with a feeble median line.
q. Elytra without rows of coarse punctures ... ... *glauca*
qq. Elytra with rows of coarse punctures near scutellum.
r. Many punctures near base of elytra transversely confluent ... *dispar*
rr. No punctures transversely confluent near base ... ... *aureoviric*
FF. Elytra with longer and less depressed hairs or setae mixed with the pubescence.
G. Elytra with more or less well-defined lines of pale clothing.
s. Femora mostly blackish ... . *aenea*
ss. Femora reddish.
t. Elytra with conspicuous rows of strong punctures, even close to suture *metallica*
tt. Elytra without conspicuous rows of strong punctures near suture.
u. Longer hairs mostly dark ... ... *lineata*
uu. Longer hairs mostly pale ... ... *viridicolli*
GG. Elytra without defined lines of pale clothing.
H. Punctures of prothorax distinct before abrasion ... ... *fraterna*
HH. Punctures of prothorax indistinct before abrasion.
I. Hind femora dentate ... ... *hirta*
II. Hind femora edentate.
J. Femora dark and metallic ... ... *virgatipes*
JJ. Femora reddish, not metallic.
K. Prothorax with paler clothing on sides than on disc ... ... *puberula*
KK. Prothorax with uniformly coloured clothing.
L. Male with a medio-apical impression on basal segment of abdomen ... ... *chalcea*
LL. Male without such.
M. Pronotum flat in middle of disc ... ... *discicollis*
MM. Pronotum gently convex there.
N. Transverse depression on fifth segment of abdomen of male deeper in middle than on sides ... ... *suaveola*
NN. Transverse depression deeper on sides than on middle ... *turneri*

NOTES ON TABLE.

In treating certain parts as more or less reddish all the various paler shades (reddish-brown, reddish, flavous, testaceous, etc.) are included, and all the metallic ones are excluded. The metallic colours of the species of *Edusa* are so variable, amongst the majority of species, that they are almost useless for the identification of single specimens of any species, by means of tables; although with long series of some species certain definite colours are occasionally found to be more or less constant.

A. *d*. On *ziczac* the elytra at first, even to the naked eye, appear to have a zig-zag fascia due to nude spaces, but on close examination the fascia is seen to be due to the pubescence there being darker than on the adjacent parts.

AA. On *melanoptera* the prothorax is slightly metallic, and on *abdominalis* the metallic gloss is sometimes but little in evidence.

B. The species here mostly correspond to the first B of Blackburn's table, and free use has been made of some of his divisions, although they cannot all be maintained; the clothing, for instance, is so liable to abrasion that to rely upon it for partially abraded specimens would lead to confusion.

AA. *h*. That the specimens identified by Blackburn as *varipes* of Boisduval will eventually be regarded as representing a variety of *distincta* I think is possible, but it is at least a typically coloured variety, differing also in the size of its prothoracic punctures from the larger specimens of that species; although from the smaller ones the colour only can be relied upon. I do not purpose here, however, treating *distincta* (the later name) as a variety or synonym of *varipes*, as the identification of that species from its original description (71) can only be a matter of guesswork, and was evidently so regarded by Blackburn. Standing under the name in his collection was a specimen sent by Chapuis as *Edusa australis*, Hope (evidently an M.S. name). But till further information is forthcoming it seems desirable to recognize the species, identified by Blackburn as *varipes*, to be such.

AA. *mm*. To see this clearly the tibiae must be examined from the sides.

AA. *n*. The concavity here referred to is not the curvature of the tibia, but a conspicuous irregular depression bounded by narrow walls.

---

(71) Aenea, plicato-rugulosa; elytris pilis albis prostratis subfasciculatis; subtus aeneo-pilosa.

BB. On *griffithi* the labrum is darker than on the majority of specimens referred here, but it is entirely without gloss.

C. All these species also have the apex of the labrum more or less distinctly incurved to middle, except on *flavipes*.

D. These species have the front femora either unarmed, or with the teeth so minute that they could easily be overlooked; quite possibly some of the species that I have regarded as having entirely unarmed femora will be found eventually to have feebly armed ones, but I have examined them carefully from all directions and could not see any. A slight amount of dust, gum, or grease, however, easily obscures them; but of every species here tabled some specimens have been examined entirely free from cardboard. And here it might be pointed out that with many species the teeth *cannot* be seen on small specimens when "set" in the ordinary way, even when the teeth are of fairly large size. With the legs hunched together, as they usually are on small unset specimens, or on pinned ones, they are normally concealed.

D. *a*. I cannot regard the tooth on *pavens* as distinct; by Blackburn it was tabled as having front femora "widely angulate but not with a distinct tooth." In general appearance it is extremely close to *viridipennis* and *evanescens*, but the longer hairs on the elytra appear to be distinctive.

y. To use this character the elytra are best viewed from an oblique hind direction; from straight above, in front, or even sometimes from perpendicular to the sides, the longer hairs are often not conspicuous, owing to their backward slope. For specimens that have at any time been mounted on their backs, or that show evidence of abrasion, it had better not be used.

D. *b*. Usually the whole femora are black, and sometimes metallic as well.

D. *d*. *Setipennis* is obviously closely allied to *griffithi*, but as its elytral clothing is certainly different to that of that species, and I can find no femoral tooth from any point of view, I am compelled to regard it as distinct. On *griffithi* the femoral tooth, although not large in itself, is rendered conspicuous by the angulation of the femur.

D. *dd*. On one specimen of *viridifrons* the femora, except at extreme base, are entirely reddish, but on six others they are as tabled.

D. *e*. Such a depression is to be found on many other species of the genus, and although seldom sharply defined it is very useful in distinguishing closely allied forms, and with a little experience is quickly detected.

D. *g*. This would appear to be a thoroughly untrustworthy character, but it is quite distinctive of six specimens that I refer to the species, and all of the eighteen specimens belonging to D. *gg*. have the elytra of a uniform shade throughout; moreover, where (as on some of the larger species) the elytra are partly brassy and partly green, it is the sutural portion that is green.

D. *h*. The characters given for D. *h*. and D. *hh*. are sufficient to distinguish the specimens before me, but it is doubtful if they can be maintained when many are known, although (with the exception of *inermis)* I have not less than five of each to judge from.

F. *rr*. *Aureoviridis* would possibly have been tabled by Blackburn as having the "anterior femora widely angulate but not with a distinct tooth."

FF. These hairs or setae are usually more distinct towards the base and apex than in the middle.

K. This is especially evident on fresh specimens.

M. In Blackburn's table *suaveola* and *perplexa* were first noted (D.D.D.) as having "anterior femora with a well-defined tooth," and later (I.), "tooth on anterior femora exceptionally small." As a matter of fact, the tooth itself, although small, forms the pinnacle of an angular enlargement of the femur, so that it is very conspicuous.

EDUSA VIRIDICOLLIS, Lef.

A very beautiful but variable species, with shagreened head and prothorax. These on the commoner forms are green, or coppery-green, or blue; on such specimens the elytra are brassy, or brassy-green, or brassy-red or purplish. But on many specimens the whole of the upper-surface is more or less brassy, or purplish, or brassy with purplish reflections. On the elytra there are numerous long hairs scattered about, and the pubescence has a distinctly lined appearance. On fresh specimens each elytron is seen to have eight lines (indistinct, however, towards the base), the first and eighth are joined at the apex, the second joins the third at about one-fourth from the apex, and later these join the conjoined fourth and fifth, and still later the conjoined sixth and seventh; a slight amount of abrasion, however, renders the junctions inconspicuous. On the prothorax a feeble remnant of a median carina is occasionally traceable.

EDUSA GERMARI, Lef.

Two specimens from Wellington (New South Wales) probably belong to this species, the type of which was evidently a female. The hind femora are angularly inflated, but scarcely dentate. The male differs from the female in having the abdomen glabrous along the middle, with the apical segment impressed on each side; the hind tibiae are of very different shape, and the first joint of each tarsus is more noticeably inflated. In Blackburn's table the species would be associated with *spinicollis*, but the male differs from the male of that species, as also of *distincta*, in the hind tibiae having the apical portion longer, the excavation of the apical slope not bounded behind by a conspicuous tooth, and the middle of the tibiae more conspicuously dilated on the under-surface; the basal segment of abdomen is also different. The hind tibiae are suggestive of those of *chrysura*, but the apical slope is somewhat shorter, less flattened out, less shining, and not longitudinally concave on the lower surface, and on that species there is no trace whatever of the median inflation. From *varians* it also differs in the apex and middle of the hind tibiae.

EDUSA CHRYSURA, Germ.

Pl. viii., figs. 109-111.

This species appears to be confined to South Australia and the western parts of Victoria.

EDUSA SUTURALIS, Chp.

Pl. viii., fig. 112.

This species occurs in New South Wales and Victoria, as well as in South Australia.

EDUSA VIRIDIPENNIS, Boh.

Many specimens from Sydney and near same (Galston and National Park) probably belong to this species, but differ from the description in having the front femora armed, the tooth, however, is so small that it could easily be overlooked, and it is invisible from most directions. The clypeus was described as "rufo-testaceis," but almost certainly (as with the similarly described *puberula* and *evanescens*) it was the labrum that was meant. The elytra of the females vary from bright-green, through golden-green, to golden.

EDUSA EVANESCENS, Boh.

The femora of this species were also described as unarmed, but on the front pair a very minute tooth (appearing like a speck of dust) is visible from certain directions; but it is so extremely small that it is invisible from most directions, and distinct from none. The male (as also the male of the preceding species) has a small median fovea on the fifth abdominal segment.

EDUSA PUBERULA, Boh.

Typical specimens of this species have the upper-surface entirely green, or golden-green; occasionally the elytra are golden-green and prothorax green, sometimes the entire upper-surface is more or less brassy. On fresh specimens the sides of the prothorax have a hoary appearance, owing to the clothing there being distinctly paler than on the disc; on old or greasy specimens, however, this is not so noticeable. Four females from Sydney have the head (except muzzle), prothorax, and elytra of a uniform and beautiful golden-red, and the clothing rather denser than usual.

Hab.—New South Wales: Sydney, National Park, Shoalhaven, Forest Reefs, Jenolan, Blue Mountains, Mittagong, Galston, Hillgrove, Tamworth, Clarence River; Queensland: Brisbane.

EDUSA AUREOVIRIDIS, Clark.

There are two specimens (from Albany and Perth) of a species in the Museum from Blackburn's collection, and bearing his name-label, "*aureoviridis*, Clark"; but although received by him five years prior to the date of his table they were not included in same, possibly from some doubt as to their identification. They differ from the description in having the elytra fairly densely clothed throughout, not "laevia . . . versus apicem subtiliter pubescentia"; the elytra as a rule are also but feebly rugose, the punctures being practically all isolated. Till evidence to the contrary is forthcoming, however, I shall regard these specimens as being correctly identified, as possibly the type was somewhat abraded and with stronger sculpture than usual.(72) The species so identified is widely distributed in Western Australia, and is usually green, but varies to almost entirely golden-red, and golden-violet; some specimens have the head, prothorax, and scutellum more or less golden, and the elytra golden-green. One green male has the elytral pubescence forming fairly distinct stripes, although these are less conspicuous than on *lineata* and *viridicollis*; a golden female has the stripes still less conspicuous. The front femora have a small tooth at the apex of a widely angulate median portion. The male (I have taken a pair *in cop.* on the Swan River) differs from the female in having the fourth segment of abdomen depressed in middle, and the fifth with a wide and fairly deep impression; the basal joint of the four front tarsi is also distinctly inflated. From some directions each of the hind femora appears to have a feeble but polished groove in which portion of the tibia can rest, the groove bounded on one side by a feeble ridge.

---

(72) An abraded male in the Macleay Museum agrees fairly well with the description.

A brassy male, compared with the type of *setosa*, and sent for examination by Mr. Arrow, agrees perfectly in all structural details with several males that I refer to *aureoviridis*.

EDUSA PAVENS, Blackb.

Of this species only the type (a female) was previously known. It was described as having "femoribus anticis late angulatis vix dentatis," and so tabled. There are before me numerous specimens from Western Australia (Donnybrook, Geraldton, Mount Barker, Swan and Warren Rivers) that probably belong to the species. From certain directions their front femora appear to be evenly rounded, from others rather widely angulate, but from others a small and quite distinct tooth is visible. The male differs from the female in being decidedly smaller (2 mm. only), green or golden-green, and on the under-surface somewhat brassy-green. The legs are stouter, fifth abdominal segment with a small median fovea (with a shining central space), and the longer hairs on the elytra less conspicuous.

EDUSA DIVERSICOLLIS, Blackb.

Pl. vii., fig. 64.

A female of this species in the Macleay Museum is labelled as from Sydney,(73) and is rather more uniformly golden-red than is usual; the species is readily distinguished by its unarmed front angles of prothorax and elongate form.

EDUSA FROGGATTI, Blackb.

Apparently this species was described from a unique female,(74) whose colour was stated to be almost as in *chrysura*.(75) Its impunctate scutellum was relied upon as its most striking feature. I have seen no specimen of the larger pubescent species with the scutellum altogether without punctures; but a female of *spinicollis* (76) before me has three small ones only; it was taken *in cop.* with a male whose scutellum has about a dozen. Both these specimens have the elytral clothing in small clusters, whereas on *froggatti* it was described as not fasciculate. Many specimens of the metallic species, however, owing to partial abrasion appear to have the elytral clothing not fasciculate.

---

(73) The locality needs confirmation.

(74) The type is now in the British Museum; in Blackburn's collection it was represented by a label only.

(75) One of the most variable species of the genus. Specimens in the Museum are green, golden-green, golden-red, blue, purple, brassy and bronze, and with many intermediate shades or combinations of shades.

(76) Quite as variable a species as *chrysura*, and abundant on many parts of the Blue Mountains.

Whilst not affirming that *froggatti* should be treated as a variety of *spinicollis*, it appears to me that its specific differences from that species (especially as regards the males) need to be demonstrated.

EDUSA PERPLEXA, Blackb.
var. *laeta*, Blackb.
var. *bella*, Blackb.

It appears to me that these three names should be treated as varietal; *bella* was considered to differ from *laeta* by slight characters of the prothorax and abdomen. On the prothorax of a specimen labelled by Mr. Blackburn as *bella* a vague carina may be seen when viewed from an oblique direction; but its absence is not of importance. As regards the abdomen, it is to be remembered that specimens that have been carded for years, on being floated off do not regain the slight upward direction of the pubescence of fresh specimens, nor, unless the soaking is prolonged for some time, does all the gum disappear from the minute inequalities of the derm, consequently fresh specimens usually have the under-surface more shining than prepared old ones.

In Blackburn's table they were separated by the upper-surface of *bella* being "entirely green," and of the others "not entirely green." But one specimen labelled by him as *bella* has the prothorax of a purplish-blue. *Perplexa* (77) and *suaveola* were distinguished by "tooth on anterior femora exceptionally small," as against "normally large" on *laeta*. As a matter of fact, the actual size of the tooth appears to be almost exactly the same on all the specimens I have examined of *perplexa*, *laeta*, *bella*, and *suaveola*, although the *apparent* size varies from almost every point of view. The commonest form of the species is the one named *laeta*, but as it was named on the following page to that of *perplexa* it must be treated as varietal, and *perplexa* (a rather rare form) as typical. The suture and sides are generaly blue (or violet), as are the shoulders occasionally. On the elytra the clothing sometimes has a vaguely striped appearance, and in Blackburn's table this might be regarded as associating such specimens with *lineata* and *aenea*. One male has the head, except in front, prothorax, and scutellum brassy, and elytra green; another has the head, prothorax, and scutellum green, and elytra

---

(77) There is a co-type in the Museum.

golden-green. I have only seen one male that could be regarded as having an obsolete carina on the prothorax; on all the others, and on all the females, it is altogether absent, or represented by a short, feebly-shining line, scarcely the length of the scutellum. The fifth segment of the abdomen is strongly incurved to middle, and across the narrowed portion there extends a shallow depression, but deepened at its ends.

The female differs from the male in having the basal joint of the four front tarsi less dilated, the fifth segment of abdomen with a fairly large fovea, and the basal one convex and sparsely clothed across the middle. It is sometimes coloured as *laeta*, but occasionally has the entire upper-surface green, or golden-green.

EDUSA DISTINCTA, Blackb.

Although not mentioned in the original description, the hind femora of this species (78) are distinctly dentate.

Some specimens from Stanthorpe (Queensland) and Ben Lomond (New South Wales) may represent a variety of this species; the males have the hind tibiae more conspicuously angulate in middle; on the typical form the apex of each has a conspicuous curved tooth overhanging a semicircular notch, the notch itself longer than the space between it and the tip; on the variety the notch is only about half the length of the space between itself and the tip, and it is without an overhanging tooth.

EDUSA MEYRICKI, Blackb.

Pl. viii., fig. 113.

Two specimens (sexes) in the Macleay Museum labelled as from Western Australia appear to belong to this species; the male agrees well with the description, except that it is larger (2½ lines). The elytral pubescence is as described by Blackburn, and its submaculate appearance appears to be natural. The female differs from the male in being larger (3 lines), more brassy, abdomen more convex, with fifth segment elevated in middle of apex, hind tibiae somewhat different at apex, and basal joint of four front tarsi smaller.

EDUSA SPINICOLLIS, Blackb.

Pl. viii., fig. 115.

A dark specimen of this species was in the Blackburn collection labelled as having been sent by Chapuis as *varipes;* a similar specimen was also sent so named by Jacoby. The characters given in the table, however, will serve to distinguish them from the species recognized as *varipes* by Blackburn.

---

(78) There are two co-types and many other specimens in the Museum.

EDUSA BLACKBURNI, new name.

Terillus suturalis, Blackb., *n. pr.*

Terillus suturalis was doubtfully referred by Blackburn to *Terillus*. The species is a common one in Western Australia (Swan and Capel Rivers, Mount Barker, Donnybrook, Bridgetown, and Pinjarrah). Its femora are unarmed, but it belongs to *Edusa*, and there are several closely allied species with similarly unarmed femora. From *E. suturalis* (Chp.) it is distinguished by its unarmed femora, slightly (but consistently) smaller size, elytral clothing longer and without a trace of lineate arrangement, and prothoracic punctures distinctly coarser. As the name *suturalis* was previously used in the genus *Edusa*, I have to propose the above substitute.

EDUSA MELANOSOMA, n. sp.

Black, non-metallic; tip of clypeus, labrum, antennae (tip excepted), palpi, tarsi, and tips of femora and of tibiae more or less reddish. Moderately clothed with greyish-white pubescence, becoming mostly sooty on elytra.

Head shagreened and punctures ill-defined, with a vague median line. Second joint of antennae stouter and more than half the length of third. *Prothorax* shagreened; punctures fairly distinct on sides, but scarcely traceable elsewhere. *Elytra* with distinct but not very large punctures, becoming smaller posteriorly, and nowhere transversely confluent. *Femora* edentate. Length, 2¾ mm.

Hab.—New South Wales: Forest Reefs (A. M. Lea). Type (unique), I. 3452.

A small black species, not very close to any other known to me. The type has a small median fovea on the apical segment of its abdomen, so it is probably a male, although the basal joint of its front tarsi is not conspicuously inflated.

EDUSA MONTANA, n. sp.

♀. Black, non-metallic; labrum, palpi (tip excepted), basal joints of antennae (the others partly or entirely infuscated), femora, tibiae, and claw joints (but not the claws) more or less reddish. Moderately clothed with whitish pubescence.

Head with dense and rather small but clearly defined punctures; median line distinct in front. *Prothorax* with slightly larger punctures than on head. *Elytra* with dense punctures of moderate size, becoming larger but not transversely confluent at about basal third (but not very large towards suture) and small on apical slope. *Femora* stout, unarmed. Length, 5¼ mm.

Hab.—New South Wales: Mount Kosciusko (W. E. Raymond). Type (unique), I. 3453.

A deep black species entirely without metallic lustre, although shining, but appearing out of place amongst the small non-metallic ones; in appearance it is fairly close to *melanoptera*, but that species is considerably smaller and with a metallic gloss (although less noticeable than on most species). The type is evidently somewhat abraded.

EDUSA ZICZAC, n. sp.

♂. Reddish-castaneous, non-metallic, appendages (tip of antennae excepted) usually paler; extreme base of prothorax, scutellum, base suture and margins of elytra, and under-surface (flanks of prosternum excepted) black. Moderately clothed with stramineous pubescence, becoming white on under-surface and legs, but darker on a median zig-zag space on elytra.

Head shagreened and almost impunctate, median line feeble. Second joint of antennae stouter and not much shorter than third. *Prothorax* shagreened, punctures minute throughout but fairly distinct on sides. *Elytra* with rather dense punctures, larger about basal third (except towards suture) than elsewhere, but not transversely confluent, and becoming small on apical slope. *Abdomen* glabrous along middle, apical segment with a small median fovea. Front *femora* angulate on lower-surface, but not dentate; basal joint of front tarsi distinctly larger than on other tarsi. Length (♂, ♀), 3¼-3½ mm.

♀. Differs in having smaller eyes, abdomen more convex, not glabrous along middle, apical segment simple, legs thinner, and front tarsi with basal joints no larger than on other tarsi.

Hab.—New South Wales: Armidale (Macleay Museum), Tamworth, Forest Reefs, Queanbeyan (A. M. Lea). Type, I. 3456.

Allied to *suturalis* and *blackburni*. but elytra with a conspicuous, irregular median space, on which the clothing is sparser and darker than elsewhere, so that it has a distinctly zig-zag appearance.

EDUSA PALLIDIVENTRIS, n. sp.

Pale-castaneous; non-metallic; appendages generally somewhat paler; suture usually very narrowly infuscated. Rather densely clothed with short stramineous pubescence, becoming white on under-surface, and denser on flanks of metasternum than elsewhere.

Head with dense and small, but fairly well--defined punctures; median line feeble or absent. Second joint of antennae stouter and not much shorter than third, and quite as long as fourth. *Prothorax* with small and more or less concealed punctures. *Elytra* with fairly dense and rather small punctures, nowhere transversely confluent. *Femora* edentate. Length, 3½-3¾ mm.

Hab.—South Australia (Macleay Museum): Morgan (Mrs. Kreusler), Murray Bridge (A. M. Lea). Type, I. 3223.

The sexual differences are much as on the preceding species, from which, and from all others of the genus, it is readily distinguished by its entirely pale under-surface.

EDUSA ARAEOCEROIDES, n. sp.

♂. Reddish-castaneous, non-metallic, appendages (tip of antennae excepted) somewhat paler; under-surface (parts of sterna and tip of abdomen excepted) black; suture infuscated. Moderately clothed with stramineous pubescence, becoming paler on under-surface.

Head shagreened, and with rather indistinct punctures; median line faint. Second joint of antennae stouter and not much shorter than third. *Prothorax* shagreened; with minute punctures. *Elytra* with dense and rather small punctures, becoming larger about basal third (except towards suture), but nowhere transversely confluent. *Abdomen* glabrous along middle; apical segment with a median fovea. *Femora* edentate; basal joint of front tarsi inflated. Length, 2¾ mm.

Hab.—Queensland: Port Denison (Macleay Museum), Rockhampton; New South Wales: Tamworth (A. M. Lea). Type, I. 3224.

In general appearance, at first glance, strikingly like some of the smaller species of *Araeocerus* (of the *Anthribidae*). It is fairly close to *blackburni*, but is smaller, prothorax with punctures scarcely traceable before abrasion, and elytral punctures also smaller. On the type the elytral clothing appears to be slightly irregular, but this may be due to partial abrasion.

EDUSA FUSCA, n. sp.

Pl. viii., fig. 114.

♂. Of a dingy reddish-brown, prothorax somewhat darker; under-surface almost black. Rather densely clothed.

Head shagreened and with dense but more or less concealed punctures. *Prothorax* shagreened, with minute punctures; front angles acutely dentate. *Elytra* short, with some fairly large punctures at basal third, but elsewhere small, dense, and more or less concealed. *Abdomen* rather short, with a glabrous median space margined with longer hairs along middle, fifth segment with a widely transverse impression, subfoveate in its middle. *Femora* stout, front pair strongly dentate; hind tibiae compressed, apical half wide and subparallel-sided; basal joint of front tarsi inflated. Length, 5 mm.

Hab.—New South Wales: Forbes (H. J. Carter, from A. Stephens). Type, I. 3632.

The antennae and tarsi of the type are almost wholly missing, and the surface is perhaps somewhat abraded, but the species being a very distinct one it has been described. The clothing on the head consists of dense and somewhat golden depressed pubescence, parted in the middle; on the prothorax and elytra most of the clothing is darker, but as these parts are more or less greasy, and as where the derm is clean the pubescence is similar to that of the head, it is probable that normally the entire pubescence of the upper-surface is more or less golden. The tooth of each front femur is placed so far back that it could be easily overlooked. The most conspicuous feature of the species is the great width of the hind tibiae, and these are not notched near the lower apex as on the male of *suturalis*.

EDUSA CLYPEALIS, n. sp.

♂. Dark metallic coppery-green, head (clypeus excepted), prothorax, suture, and parts of under-surface more or less brassy; labrum black, with a brassy gloss; antennae (tips of five apical joints excepted), palpi (tips excepted), and legs more or less reddish. Moderately clothed with whitish pubescence, on the elytra forming feeble lines, and no sparser towards suture than elsewhere.

Head shagreened and with fairly dense but rather indistinct punctures; median line distinct and in front dilated; clypeus highly polished and minutely punctate. *Prothorax* shagreened, with small and well-defined but not very dense punctures. *Elytra* with dense punctures of moderate size, becoming larger in places, and smaller posteriorly, about basal third many transversely confluent. *Abdomen* glabrous along middle; apical segment foveate. Front *femora* strongly dentate; basal joint of front tarsi strongly, of middle ones moderately inflated. Length (♂, ♀), 5-6 mm.

♀. Differs in being of a beautiful golden-red, clypeus more brassy than green, eyes smaller and less prominent, and in the usual particulars of abdomen and tarsi.(79)

---

(79) Abdomen more convex, not glabrous along middle, apical segment not foveate, and front tarsi with basal joint not conspicuously inflated.

Hab.—Western Australia (British and Macleay Museums); Geraldton (A. M. Lea). Type, I. 3455.

Rather smaller than the other species with metallic labrum, and elytral clothing uniformly distributed instead of being confined to the sides and apex; the clypeus is unusually conspicuous. The British Museum specimens are more obscurely coloured than the types, but otherwise agree with them.

EDUSA ABDOMINALIS, n. sp.

Pl. viii., fig. 116.

♂. Black with a vague purplish or bronzy-gloss; labrum deep metallic-blue or brassy, palpi with basal joints flavous, antennae infuscated, basal joints more or less pale on under-surface, upper-surface of first metallic. Upper-surface with rather sparse whitish pubescence, condensed into small distinct spots on elytra, but basal half of same in middle glabrous.

Head shagreened, with dense and distinct but rather shallow punctures; median line narrow at base, dilated in front; clypeus depressed and minutely punctate. *Prothorax* with front angles rather acutely produced; with very dense punctures of moderate size, becoming larger towards sides, and frequently transversely confluent. *Elytra* with dense and fairly large punctures, transversely confluent almost throughout, and very conspicuously so in places. *Abdomen* glabrous along middle, basal segment with a subtriangular apical process, apical segment rather shallowly transversely impressed at base. *Femora* stout, front pair strongly dentate, the others subangulate; hind tibiae with apical slope long, and with a conspicuous tooth overhanging summit of same; basal joint of four front tarsi conspicuously inflated. Length (♂, ♀), 6½-7½ mm.

♀. Differs in hind tibiae with apical slope much shorter and without a tooth overhanging same, and in the abdomen and tarsi.

Hab.—New South Wales: Blue Mountains (Blackburn's collection), Braidwood, Loftus, National Park, Sydney (A. M. Lea), Port Stephens (British Museum), Sydney (Macleay Museum and E. W. Ferguson). Type, I. 3457.

In Blackburn's table would be associated with *spinicollis*, from which it differs in its darker colour, darker legs, and different abdomen of male. On the male of the present species the basal segment has a conspicuous triangular space in the middle with numerous transverse striae, and the apex, when viewed from the side, appears as a pointed flap, considerably elevated above the adjacent parts. On *spinicollis* the median space is considerably wider, more rounded posteriorly, not elevated as a flap above (although somewhat higher than) the adjacent parts, and very feebly (scarcely visibly) striated. The female is generally more conspicuously brassy than the male.

EDUSA MONTICOLA, n. sp.

Pl. viii., fig. 117.

♂. Metallic brassy-green or greenish-blue; under-surface brassy or bluish, labrum metallic, parts of antennae more or less reddish. Elytra with small spots of whitish clothing about the apex and sides.

Head densely and finely obliquely strigose, and with numerous subasperate punctures; a shallow transverse depression between eyes, and from its middle (where it is rather deeper than elsewhere) a median line extending backwards to base. *Prothorax* with front angles acute; with dense punctures mostly conspicuously transversely confluent. *Scutellum* transversely oblong, with a few small punctures. *Elytra* with dense punctures, transverse sculpture very conspicuous except on parts of the apical slope. *Abdomen* glabrous along middle, basal segment finely transversely striated, middle of apex less metallic, fourth flat in middle, fifth irregularly depressed in middle, apex incurved for reception of pygidium. Front *femora* strongly dentate, hind ones moderately and obtusely, middle ones still more obtusely dentate; hind tibiae somewhat sinuous on lower-surface, apical slope rather long and irregular. Length, 6½-7 mm.

♀. Differs in being more robust, hind tibiae with the apical slope much more abrupt and in the abdomen and tarsi.

Hab.—New South Wales: Mount Kosciusko (H. J. Carter). Type, I. 3633.

Close to *spinicollis*, but tibiae entirely metallic instead of reddish at the base, the hind ones of the male with the apical slope longer and the overhanging tooth less conspicuous. The basal joint of the antennae is metallic on the upper- and reddish on the under-surface, the three following joints are partly dark on the upper-surface; parts of the next two joints are subject to variation in colour. The head, and more especially the clypeus, appears to be shagreened, but on close examination its finer sculpture is seen to be due to very fine striation. On the prothorax only some of the medio-apical punctures are separately impressed, elsewhere they so run together that the surface appears to be covered with fine transverse ridges, and these on close examination are seen to be strigose. The basal joint of each of the four front tarsi is alike in length on the sexes, but whilst that of the male is almost parallel-sided for at least three-fourths of its length, on the female it is narrowed from apex to base; the tooth of the middle femora is feeble, and could be easily overlooked, but is alike on both sexes.

Some specimens recently received from Dorrigo (W. Heron) show a range of metallic colours much as those of *chrysura* and *spinicollis*, but on all of them the femora and tibiae are entirely metallic.

EDUSA RUFILABRIS, n. sp.

♂. Metallic-green, in parts with a brassy gloss, labrum and parts of appendages more or less reddish. With short, depressed, stout, whitish setae.

Head with dense punctures of rather small size, becoming longitudinally and obliquely confluent, and smaller but more sharply defined on clypeus than elsewhere. *Prothorax* with dense but not very large punctures becoming more or less confluent on sides, interspaces with minute punctures; front angles feebly dentate. *Scutellum* feebly punctate. *Elytra* very little wider than prothorax; with dense punctures, transverse sculpture conspicuous, except about suture and on parts of the apical slope. *Abdomen* with fourth segment flat in middle, almost as long as third and fourth combined, fifth shallowly depressed across middle. Front *femora* lightly dentate; hind tibiae at apex rather wide and truncated; basal joint of four front tarsi somewhat inflated. Length, 6-6½ mm.

♀. Differs in the usual particulars of the abdomen and tarsi.

Hab.—Western Australia. Type, in Macleay Museum; co-type, I. 3634, in South Australian Museum.

A large green species, but readily distinguished from most of the large ones by its non-metallic labrum. The tooth of the front femora, although small, is fairly conspicuous on account of its position. The clothing on the elytra is rather too thin to be regarded as scales, but considering it as such the species would be associated with *griffithi*, which structurally it is certainly very close to, but the elytra of that species are certainly squamose, and the abdomen of the male is not quite the same; the colour is probably not to be relied upon, but the three specimens before me all have green elytra, and those of *griffithi* are not at all green. On the female the upper-surface is without the brassy gloss, the under-surface of one male is mostly bronzy; parts of the first and of the fifth and sixth joints of antennae and the whole of the second to fourth are reddish, the apical joint of each palpus is infuscated, the femora are usually deeply infuscated in parts, and where darkest they have a metallic gloss; the tarsi are rather deeply infuscated. The males are evidently rather badly abraded, but the female appears to be normally clothed, and on the elytra the pubescence is absent from a fairly wide sutural space on the basal two-thirds. The median line on the head is but feebly impressed, but on one male, owing to its being green, and the adjacent surface brassy, it is very conspicuous.

EDUSA ATRICHIA, n. sp.

♂. Brassy-green, labrum and appendages reddish, but tip of antennae infuscated. Upper-surface glabrous.

Head with crowded asperate punctures becoming obliquely or longitudinally confluent posteriorly, a shallow depression between eyes, median line feebly impressed. *Prothorax* with dense and rather large punctures, becoming still larger and denser on sides, the interspaces with minute punctures. *Scutellum* semicircular, impunctate or almost so. *Elytra* very little wider than prothorax; near suture with punctures subseriate in arrangement, becoming confined to deep striae on apical slope, elsewhere between conspicuous transverse or oblique ridges, these towards base encroaching even on the suture. *Abdomen* glabrous along middle, fourth segment distinctly longer than third, and slightly longer than fifth, the latter shallowly depressed and purplish in middle. Front *femora* conspicuously but not strongly dentate; hind tibiae rather long, apical slope abrupt; basal joint of four front tarsi distinctly inflated. Length, 7½-8 mm.

Hab.—New South Wales: Sydney. Type, in Macleay Museum; co-type, I. 3635, in South Australian Museum.

The three specimens before me (two of which were without labels of any kind) are entirely without elytral clothing even in the lateral gutters, so apparently they are not abraded; one of them has the scutellum gently convex, highly polished, and impunctate; the others have it feebly depressed and faintly rugulose, although without distinct punctures. This is suggestive of *froggatti*, but the glabrous elytra and uniformly red legs should be distinctive from that species. Its nearest ally is *plicata*, which is somewhat smaller, with darker legs, smaller and denser prothoracic punctures, and even more pronounced transverse sculpture of elytra. In the table it is associated with *chlorophana*, although differing in many particulars from same. In general it is like members of the group with metallic labrum. One has the elytra almost entirely brassy, another has it almost entirely green, the third being intermediate. Seen directly from above the sides of the elytra appear to be slightly incurved behind the shoulders, but the margins themselves are not at all incurved there. The flanks of the prosternum are glabrous, and have numerous large punctures; the episterna are pilose, with dense, partially concealed punctures and the front edge rather strongly rounded (as viewed from behind).

EDUSA PLICATA, n. sp.

♂. Dark metallic brassy-green; labrum, palpi (tips darker), and basal portion of antennae reddish; legs metallic, but in places obscurely diluted with red. Under-surface rather sparsely clothed, but with some long hairs along each side of middle of abdomen; upper-surface glabrous.

Head with dense and rather strong punctures, about base longitudinally confluent, in front larger and more clearly defined, becoming smaller and sparser on clypeus; median line deep in middle, feeble towards base and apex. *Prothorax* rather strongly convex, front angles feebly produced; with dense, fairly large, and sharply defined punctures. *Elytra* suboblong; with dense punctures conspicuously transversely or obliquely confluent almost throughout. *Abdomen* glabrous along middle, but with some long hairs near same, apical segment transversely impressed. *Femora* stout, edentate; hind tibiae spinose at lower apex; basal joint of four front tarsi strongly inflated. Length, 7 mm.

Hab.—North-western Australia (Blackburn's collection, from C. French); Western Australia (British Museum, from Baly's collection). Type, I. 3400.

A glabrous species with transverse sculpture of elytra more pronounced than usual, many of the elevations separating the punctures appearing to extend, with but feeble interruptions (sometimes entirely without any), from the suture almost to the margin, so that they have quite a corrugated appearance; on the apical slope, however, there are a few irregular striae about the suture. Its right to a position in the genus is open to question, but it is certainly conspecific with several *Edusae* of Blackburn. A female evidently belonging to this species (but from the old collection without locality label) differs from the type in being more conspicuously green, transverse sculpture of elytra less pronounced, although strong, only the tips of four apical joints of antennae dark, and in the sexual features of the abdomen and tarsi.

EDUSA CHLOROPHANA, n. sp.

♀. Bright metallic-green, some parts with a slight brassy gloss; labrum, tip of abdomen, and all the appendages (tip of antennae excepted) flavous. Under-surface very sparsely clothed, upper glabrous.

Head with fairly dense, sharply defined punctures of moderate size, becoming sparser and smaller on clypeus;

median line distinct in middle. *Prothorax* with sides evenly rounded, front angles gently produced; with rather large punctures, becoming crowded on sides. *Elytra* with sides gently and evenly rounded; with clearly defined punctures of rather large size, on basal half (but not about base itself) many transversely confluent, apical slope with small punctures and a few distinct subsutural striae. Front *femora* moderately dentate. Length, 3½-3¾ mm.

Hab.—New South Wales: Comboyne (W. H. Muldoon). Type, I. 3458.

The entirely glabrous upper-surface of this, and of the five following species, is strikingly at variance with the majority of species of *Edusa*, but apart from this character they would appear to belong to that genus, and several glabrous species have previously been referred to it. The three specimens before me of the present one evidently belong to but one sex, as the abdomen is simple they are probably females, but the basal joint of each of the four front tarsi is rather longer than is usual on females. The prothorax has considerably larger and sparser punctures, especially on the disc, than on *flavipes* or *podagrosa*.

Of four specimens recently obtained from Dorrigo(80) (W. Heron) three are males, and these differ from the type in having the fourth segment of abdomen larger, the fifth narrowly transversely impressed on each side, the basal joint of the four front tarsi larger, and the antennae somewhat longer; five females (of which one is purple), also from Dorrigo, differ in being larger (4¼-4½ mm.). All the Dorrigo specimens have the head more convex and with smaller punctures than on the type.

EDUSA FLAVIPES, n. sp.

Bright metallic-green; labrum, palpi (tips excepted), antennae (parts of five or six apical joints excepted), and legs (parts of tarsi excepted) reddish-flavous. Upper-surface glabrous, the under rather lightly pubescent.

Head with fairly dense, well-defined punctures of moderate size, becoming small on clypeus; median line well impressed; front of clypeus almost straight. *Prothorax* with sides evenly rounded, front angles moderately acute; with dense and sharply defined but rather small punctures. *Elytra* with sides gently rounded; with dense and fairly large punctures, becoming smaller posteriorly and towards (but not at) base more or less transversely confluent. Front *femora* strongly dentate. Length, 3¾ mm.

Hab.—Victoria (Blackburn's collection). Type, I. 3174.

---

(80) Near Comboyne.

Readily distinguished from *glabra* by the punctures. One specimen has the basal joint of the front tarsi more strongly inflated than on another, so it is probably a male, but I have been unable to clean its abdomen sufficiently well to see the apical segment clearly.

Since the above was written I have seen eight specimens from New South Wales (Clyde River, Macleay Museum, and Gosford, H. J. Carter), of which four are males, and each of these has a distinct round fovea on the apical segment of abdomen; a Clyde River female is deep blue, with purple elytra, and legs somewhat infuscated.

EDUSA VIRIDIMETALLICA, n. sp.

♂. Bright metallic-green; labrum, palpi, antennae (tip excepted), and legs (third tarsal joints and the claws excepted) flavous. Upper-surface glabrous, the under almost so.

Head with dense punctures of moderate size; median line rather wide in front, narrow at base; clypeus distinctly notched in front, punctures almost as dense as on rest of head. *Prothorax* and *elytra* much as in preceding species. *Abdomen* with a rather shallow apical fovea. Front *femora* rather strongly dentate; basal joint of four front tarsi distinctly wider, but not longer than on hind pair. Length, 3¾-4¼ mm.

Hab.—New South Wales: Richmond River (British Museum), Albion Park (R. Helms). Type, I. 3459.

In general appearance strikingly close to the preceding species, and with very similar punctures, but front edge of clypeus distinctly notched, instead of almost perfectly straight.

EDUSA PODAGROSA, n. sp.

Bright metallic-green; labrum, palpi (tips excepted), antennae (tips excepted), and legs (an infuscate spot with a greenish gloss on each femur excepted) flavous. Glabrous.

Head with fairly dense, sharply-defined punctures of moderate size, becoming smaller and subconfluent about base, and smaller but not sparser on clypeus; median line narrowly impressed. *Prothorax* rather strongly convex, front angles rather feebly produced; with rather small and moderately dense, but well-defined punctures. *Elytra* with sides more rounded than usual; with moderately large and fairly dense punctures on basal half, becoming smaller posteriorly, and nowhere transversely confluent. Flanks of *prosternum* with numerous distinct but irregularly distributed punctures. *Abdomen* with a conspicuous apical fovea. Front *femora* strongly dentate; basal joint of front tarsi strongly inflated. Length, 3¾-4 mm.

Hab.—New South Wales: Tamworth (A. M. Lea). Type, I. 3460.

In general appearance close to *flavipes*, but elytral punctures nowhere transversely confluent (a character which would exclude it altogether from the *Edusites* as defined by Chapuis), and with the cephalic punctures and median impression less distinct.

EDUSA HETERODOXA, n. sp.

♂. Of a vivid metallic-green; labrum and appendages flavous, coxae and abdomen somewhat darker. Upper-surface entirely glabrous, elsewhere almost so.

Head with dense punctures of moderate size, becoming confluent posteriorly; median line well defined, becoming deep in front. Antennae long and thin. Apical joint of palpi subovate, but truncated at apex. *Prothorax* scarcely twice as wide as the median length, all angles armed, sides obliquely dilated to middle; with fairly dense punctures of moderate size on disc, becoming larger and more crowded on sides. *Scutellum* comparatively small and almost impunctate. *Elytra* with shoulders and apex rounded, but elsewhere parallel-sided; with dense and fairly large punctures, transversely confluent behind shoulders, in feeble subgeminate rows in places, and towards suture on apical slope confined to distinct striae. Flanks of *prosternum* with dense and rather large punctures, smaller and denser elsewhere. *Abdomen* glabrous along middle, fourth segment as long as second and third combined and distinctly longer than fifth, the latter foveate in middle. Front *femora* dentate; tibiae rather thin; basal joint of four front tarsi elongate and strongly inflated. Length, 5-5¼ mm.

Hab.—New South Wales: Illawarra (H. J. Carter). Type, I. 3636.

The greatly inflated basal joint of the four front tarsi, and larger fourth abdominal segment, would seem to indicate that the species belongs to *Colaspoides* or *Geloptera*, but the palpi truncated at the apex (although much narrower than those of *securigera* or of *palpalis*) are more in accordance with those of several species of *Edusa*, and, in fact, at first glance it appears close to such species as *chlorophana*, *flavipes*, etc. On two of the three specimens before me the antennae are entirely pale, on the third the tip is very feebly infuscated; the abdomen is lightly infuscated in the middle of the basal segment; the metasternum is more or less brassy. The sides of the prothorax, whilst not dentate at the middle, are rather conspicuously angulate there. The dentition of the front femora is rather feeble, but quite conspicuous from certain directions.

EDUSA ZIETZI, n. sp.

♂. Metallic-green; labrum and appendages reddish, but tip of antennae infuscated. Very sparsely clothed.

Head with dense but not very large punctures, slightly larger on clypeus than elsewhere; median line distinct. *Prothorax* about twice as wide as median length, sides strongly and evenly rounded, front angles very feebly armed; with dense but rather small punctures on disc, becoming crowded but scarcely larger on sides. *Elytra* short, distinctly wider than base of prothorax, and widest slightly beyond the middle; with dense and fairly large (but not confluent) punctures behind shoulders, smaller elsewhere, about middle in more or less irregular subgeminate rows, towards suture on apical slope confined to fairly deep striae. Flanks of *prosternum* glabrous and with fairly large punctures. *Abdomen* with a small, circular apical fovea. *Legs* stout; front femora lightly dentate; tibiae dilated to apex and almost vertical there; basal joint of four front tarsi inflated. Length, 3¼-3½ mm.

♀. Differs in the abdomen and tarsi.

Hab.—New South Wales: Clarence River (A. and F. R. Zietz), Grafton (H. J. Carter, from S. Jackson). Type, I. 3587.

A rather small, compact green species, with unusually thick legs. The three specimens before me at first appear to have the upper-surface quite glabrous, but on close examination some extremely fine and sparse pubescence may be seen at the apex and sides of elytra, and some more distinct (but still very fine) on the head and sides of prothorax. The tooth of the front femora is small, but, as from certain directions it is distinct, the species has been referred to DD in the table. The male has the under-surface not much darker than the upper, but in the females it is brassy.

EDUSA MARGINICOLLIS, n. sp.

Bright metallic-green, in places with a brassy or brassy-red gloss; under-surface mostly brassy, labrum, palpi (tips excepted), and legs more or less reddish.

Head with dense, sharply-defined punctures of moderate size, becoming somewhat larger between eyes, and smaller on clypeus; median line absent. *Prothorax* with sides evenly rounded; with dense and not very large, but sharply-defined punctures, becoming crowded on sides. *Elytra* suboblong, rather narrow; with dense punctures of moderate size from near base to beyond the middle frequently transversely confluent; apical slope with smaller punctures, and with distinct subsutural striae. Length, 4¼ mm.

Hab.—Queensland: Dalby (Mrs. F. H. Hobler). Type (unique), I. 3461.

Close to *angustula*, but prothoracic punctures and clothing different. The elytra are entirely glabrous, but all the margins of the prothorax are quite densely clothed. The front femora from most directions appear to be edentate, but from one direction a very minute tooth becomes visible. On the type (probably a female) both antennae are broken, four joints of one and two of the other being all that are left, and these are entirely reddish.

EDUSA AUREORUFA, n. sp.

♀. Golden-red, under-surface more or less brassy; labrum and all appendages (tip of antennae excepted) reddish. Moderately densely clothed with rather dark pubescence, but becoming whitish along middle and sides of prothorax, on scutellum, and on many interrupted lines on elytra.

Head shagreened; with rather dense but inconspicuous punctures; median line feeble. Antennae with second joint stouter and not much shorter than third. *Prothorax* with some vague transverse impressions, front angles feebly produced and strongly depressed below basal ones; with fairly dense, minute punctures. *Elytra* with dense minute punctures throughout, becoming larger towards base; and with numerous rather feeble but distinct striae. *Femora* unarmed. Length, 3 mm.

Hab.—Queensland: Mount Tambourine (A. M. Lea). Type, I. 3222.

The spotted appearance of this, and the following species, is certainly not due to partial abrasion, but to the clothing in places being conspicuously paler than elsewhere. The striation of the elytra, although feeble, is quite distinct throughout, but the punctures in the striae are larger towards the base than apex; the interstice starting from each shoulder has a distinctly carinated appearance to beyond the middle, but more distinct on one specimen than on another.

EDUSA SUBMACULATA, n. sp.

♂. Brassy, clypeus and under-surface brassy-green; labrum and all appendages (tips of antennae excepted) more or less red. Moderately clothed with rather short pubescence, somewhat variegated on upper-surface.

Head shagreened; with dense and shallow but moderately distinct punctures; median line distinct, but not deeply impressed. Second joint of antennae stouter and not much shorter than third, third shorter than fourth. *Prothorax* with all angles evenly rounded; with moderately dense, small, evenly distributed punctures. *Elytra* rather wide, suboblong; with dense and rather small punctures, becoming smaller posteriorly, with a feeble transverse depression on each side at about basal third (where the punctures are larger than elsewhere, but not transversely confluent), and a longitudinal submedian one. *Abdomen* glabrous along middle, apical segment convex in middle of apex, feebly depressed before same. *Femora* edentate; four front tarsi with basal joint distinctly inflated. Length (♂, ♀), 3-3½ mm.

♀. Differs in the abdomen and tarsi.

Hab.—Victoria: Dividing Range (Blackburn's collection); New South Wales: Eden (H. J. Carter). Type, I. 3233.

The elytra have a submaculate appearance, but the species is very different to the preceding one, as the darker parts of the elytra are due to the pubescence there being of the same shade of colour as the derm, with the paler portions less lineate in arrangement. But the punctures are also different, the outlines differ considerably, and each elytron is without the post-humeral carina.

EDUSA MELANOPTERA, n. sp.

♂. Black, head and prothorax with a slight coppery gloss; labrum and appendages (tips of palpi and of antennae, and the claws excepted) more or less reddish. Moderately clothed with rather short, whitish, silken pubescence; on the elytra some longer hairs scattered about.

Head shagreened; with dense but not very large punctures, more clearly defined on clypeus than elsewhere: median line rather wide and distinct in front, feeble about base. *Prothorax* shagreened; with small and rather dense punctures. *Elytra* suboblong; with dense and fairly large punctures, larger (and a few transversely confluent) about basal third than elsewhere, and becoming rather small posteriorly, but smaller at summit of apical slope than at end of same. Apical segment of *abdomen* transversely impressed in middle. Front *femora* scarcely visibly dentate; four front tarsi with basal joint distinctly inflated. Length (♂, ♀), 4½-5 mm.

♀. Differs in the abdomen and tarsi.

Hab.—New South Wales: Jenolan (J. C. Wiburd). Type, I. 3462.

A dark species with elytra almost entirely non-metallic, and the gloss on head and prothorax not very pronounced. The elytra in places appear to have remnants of geminate striae. The front femora have a subangulate swelling, that from certain directions is seen to culminate in a small tooth, but it is so feeble that Blackburn would probably have tabled it as having "anterior femora widely angulate, but not with a distinct tooth."

EDUSA TRIDENS, n. sp.

♂. Bright metallic brassy-green; in places more brassy than green; labrum, palpi (apical joint black), antennae (some of the apical joints partly or wholly infuscated) and legs (parts of tarsi excepted) more or less reddish. Moderately clothed with whitish pubescence, on the elytra mixed with rather numerous longer hairs.

Head with dense and sharply-defined, but rather small punctures; median line well defined. *Prothorax* shagreened; front angles feebly produced; with dense and small punctures. *Elytra* suboblong; with dense punctures of moderate size, becoming smaller posteriorly, and larger about basal third, and near same, than elsewhere. *Abdomen* glabrous along middle, apical segment lightly transversely impressed. *Femora* unarmed; four front tarsi with basal joint rather strongly inflated. Length (♂, ♀), 5¼-5½ mm.

♀. Differs in being of a brassy-red, with only the front of the clypeus green, and in the usual particulars of abdomen and tarsi.

Hab.—New South Wales: Mount Kosciusko (R. Helms and W. E. Raymond). Type, I. 3463.

The three specimens before me all differ in colour; on the type male the head (from certain directions) appears to have a conspicuous green trident, the space between the tines being brassy; on the female the trident is traceable by slight impressions, although not by colour; but on another male the head is entirely green. A few of the elytral punctures appear to be feebly confluent, but there are no distinct transverse ridges separating them. In some respects it resembles some of the varieties of *viridicollis*, but the femora are edentate.

EDUSA URSA, n. sp.

♂. Golden-bronze, upper-surface shagreened throughout; femora and parts of under-surface sometimes with a greenish gloss, labrum, palpi (apical joint black), basal joints of antennae, and parts of tibiae more or less reddish. Very densely clothed with short, stramineous pubescence.

Head with dense, but small and well-defined punctures; median line feeble. *Prothorax* with punctures minute and scarcely traceable before abrasion. *Elytra* suboblong; striate-punctate, punctures fairly large about base, becoming smaller posteriorly; striae rather lightly impressed, but distinct throughout. *Abdomen* glabrous along middle; apical segment with a small median fovea. *Legs* stout; front femora angulate but scarcely dentate; four front tarsi with basal joint somewhat inflated. Length (♂, ♀), 4¾-5¾ mm.

♀. Differs in the abdomen and tarsi.

Hab.—New South Wales: Illawarra, Otford (Macleay Museum and H. J. Carter), Sydney (Blackburn's collection), Wollongong (A. M. Lea). Type, I, 3220.

The clothing is denser than on any other species in the Museum, being denser even than on *hirta*, whose femora also are very different.

EDUSA SETIPENNIS, n. sp.

♀. Black with a slight or moderate coppery gloss, becoming bluish on part of suture; labrum (its middle infuscated), basal joints of palpi, joints three to six of antennae and parts of others, tibiae, and base of femora, more or less reddish. Moderately clothed with short, depressed white setae, or pubescence.

Head with dense and rather shallow punctures, fairly well defined but in places subconfluent; median line feeble. *Prothorax* with front angles moderately acute, but scarcely visible from above; with dense and rather small punctures, becoming longitudinally confluent on sides. *Elytra* suboblong: with fairly large punctures, more or less transversely confluent over most of surface, but becoming smaller and shallower posteriorly. Front *femora* subangulate, but not dentate. Length, 5½ mm.

Hab.—Western Australia: Mullewa (Miss J. F. May). Type (unique), I. 3464.

In general appearance close to *griffithi*, but clothing different and femora edentate. The type is possibly somewhat abraded, but on the elytra the setae (which are sparser towards and absent from suture, except posteriorly, than elsewhere) nowhere exhibit a tendency to form fascicles.

EDUSA VIRIDIFRONS, n. sp.

Golden-bronze, or purplish-bronze, or brassy, in places green or coppery-green; labrum, palpi, and antennae (tip excepted) more or less flavous; legs reddish, in places darker. Rather densely clothed with short, depressed, whitish or greyish pubescence.

Head shagreened; with dense and rather small punctures, sharply defined on and near clypeus, but less distinct elsewhere; median line distinct but not deep. *Prothorax* shagreened, all angles rounded off; punctures small and ill-defined. *Elytra* suboblong; with dense and rather small punctures, becoming larger about basal third. *Femora* unarmed. Length, 4-5 mm.

Hab.—New South Wales: Jenolan (J. C. Wiburd). Type, I. 3465.

There are seven specimens under examination, but I can find no positive sexual differences between any of them. Some have more of the head green and the abdomen less convex, and these are possibly males; but as the abdomen is not conspicuously glabrous along the middle of any of them, and the basal joint of the front tarsi is much alike in all, they are probably all females. On one specimen the legs (tarsi excepted) are almost entirely reddish, but on the others the femora and tibiae are both more or less infuscated (and sometimes submetallic) towards the apex, and the tarsi (claw-joint but not the claws excepted) are dark. The clypeus is always of a vivid green, and the green sometimes extends backwards almost to the base, or narrowly along the middle. The tip of the prothorax and the scutellum are sometimes green, the metasternum is generally brassy-green, the abdomen generally brassy-purple or brassy. Each elytron about the basal third has a vague transverse depression, and obscurely connected with this a feeble submedian longitudinal one; on the depressed parts the punctures are larger than elsewhere, although not transversely confluent, and the striation is fairly distinct: but from various directions feeble striation may be seen on almost any part of the elytra.

EDUSA FLAVICORNIS, n. sp.

Coppery, with a vague greenish gloss; parts of under-surface brassy-green, front of head and a median line from same bright green; labrum and appendages more or less flavous. Densely clothed with rather short, golden pubescence, becoming paler in places.

Head with punctures and median line much as on preceding species. *Prothorax* shagreened; with dense and small but fairly distinct punctures. *Elytra* suboblong; striate-punctate, striae feeble but distinct; punctures fairly large on basal half, becoming small posteriorly; interstices with dense minute punctures; a vague post-humeral depression on each side. *Abdomen* glabrous along middle, apical segment highly polished. *Femora* edentate; basal joint of four front tarsi distinctly inflated. Length, 4 mm.

Hab.—New South Wales: National Park (A. M. Lea). Type (unique), I. 3466.

In general appearance close to *ursa*, but size somewhat smaller, clothing sparser, and legs reddish. On the type not even the tips of the antennae are infuscated. The elytral punctures are nowhere transversely confluent. The abdomen is without sexual impressions, but the basal joint of the four front tarsi seems too large for the specimen to be other than a male.

EDUSA POSTHUMERALIS, n. sp.

Brassy or brassy-green, or golden-purple, head more or less green; labrum and appendages (tip of antennae and claws excepted) flavous or reddish. Moderately densely clothed with short, depressed, silken pubescence, becoming paler on under-surface.

Head shagreened; with dense and small punctures, becoming larger and more sharply defined towards and on clypeus; median line narrowly impressed towards base, becoming almost foveate in front. *Prothorax* shagreened with minute but fairly distinct punctures. *Elytra* rather short, suboblong; on basal half with fairly large punctures, becoming smaller posteriorly, especially about suture; a feeble depression about each shoulder. Basal segment of *abdomen* glabrous along middle. *Femora* unarmed; four front tarsi with basal joint somewhat inflated and larger than on hind pair. Length (♂, ♀), 3-3¾ mm.

♀. Differs in being more brassy, and in the abdomen and tarsi.

Hab.—New South Wales: Dorrigo and Gosford (H. J. Carter), Sydney (Macleay Museum), Galston (A. M. Lea). Type, I. 3467.

There were several species (including *viridipennis* and *evanescens)* mixed with the present one, but all now regarded as belonging to the species have a depression behind each shoulder, interrupted in middle by a ridge that divides it into two parts; from the two species named these depressions are entirely absent. From *glauca* the femora are at once distinctive. The colour of the prothorax and elytra (and including the scutellum or not) varies from a brassy-green to a beautiful golden-purple, occasionally the elytra are darker than the prothorax, but they are usually of one uniform shade of colour. On the males (a pair in the Macleay Museum are marked as having been taken *in cop.)* the head is almost entirely of a vivid-green, and sometimes almost the entire under-surface is greenish; the apical segment of abdomen appears to be without a transverse impression, but from certain directions a very feeble one may be seen; on the females the clypeus and adjacent parts are usually brassy-green, but occasionally with the green tinge scarcely indicated.

EDUSA VIRIDILATERA, n. sp.

Brassy or brassy-green, in places becoming coppery or green; labrum and appendages (tip of antennae and claws excepted) flavous or reddish. Clothing much as on preceding species.

Head shagreened, with dense and small punctures, sharply defined only on clypeus; median line distinct but feebly impressed. *Prothorax* shagreened; with small but distinct punctures. *Elytra* briefly suboblong, distinctly wider than prothorax; punctures somewhat as on preceding species, but a few transversely confluent. *Femora* unarmed. Length, 3-3½ mm.

Hab.—New South Wales: Galston (A. M. Lea). Type, I. 3468.

On all the (seven) specimens before me the elytra are conspicuously green on the sides, and become brassy along the middle; on the prothorax the sides are sometimes green, and the disc brassy, but on some the prothorax is uniformly green; the head varies from almost entirely green, to green, or brassy-green only on the clypeus and adjacent to same. The specimens, if all of one sex, are females, but as there are feeble differences in the clothing of the abdomen, and in the basal joints of tarsi, it is possible that some are males, and that the sexes are but feebly defined.

EDUSA CHLORION, n. sp.

♂. Bright metallic-green; labrum and appendages (tip of antennae and the claws excepted) more or less reddish. Densely clothed with short, depressed, stramineous or whitish pubescence, becoming quite white on under-surface.

Head very feebly shagreened; with dense and small punctures, becoming sharply defined on clypeus; median line fairly distinct in front, vague towards base. *Prothorax* shagreened; punctures small and indistinct before abrasion. *Elytra* briefly suboblong; with dense but rather small punctures, larger about basal third than elsewhere. *Abdomen* glabrous along middle, apical segment with a small median fovea. *Femora* unarmed. Length (♂, ♀), 2½-3½ mm.

♀. Differs in the abdomen and tarsi.

Hab.—Western Australia: King George Sound (British Museum, from C. Darwin), Rottnest Island, Bunbury (A. M. Lea). Type, I. 3440.

Close to *pavens*, but elytra entirely without long hairs, and front femora evenly rounded; the females also are green. From *evanescens*, to which it is closer, it is distinguished by the greater comparative width of the prothorax; it is also consistently somewhat larger. Before abrasion the prothoracic punctures are much less distinct than on *inermis*, and after abrasion they are seen to be smaller and denser; the five specimens before me are also more of a golden-green, whereas on the type (the only specimen known) of that species the elytra have a distinct purplish gloss. On the under-surface of the female the colour is more brassy than green.

EDUSA NIVEOSQUAMOSA, n. sp.

♂. Blackish-bronze; labrum and appendages (tip of palpi and of antennae, and the claws excepted) reddish or flavous. Rather densely clothed with snowy-white elliptic scales.

Head rather wide; with small and dense partially-concealed punctures; median line indistinct. *Prothorax* more than twice as wide as long, front angles feebly acute; with small scattered punctures. *Elytra* rather elongate, no wider than prothorax, parallel-sided to beyond the middle, punctures not very large, somewhat irregularly distributed, and larger about basal third (where some of them are confluent) than elsewhere. *Abdomen* with a conspicuous median fovea on apical segment. *Femora* stout, front pair strongly dentate; basal joint of each tarsus inflated. Length, 4½ mm.

Hab.—South Australia: Cook Plain (J. G. O. Tepper). Type (unique), I. 3235.

Readily distinguished from all others of the genus by the snowy-white elliptic scales; these are uniform in character on the upper- and under-surfaces, and on the legs; on the prothorax and elytra they are not quite uniformly distributed (but this may be due to partial abrasion), they are denser than elsewhere on the flanks of the sterna.

EDUSA MIRA, n. sp.

Pl. vii., fig. 65; pl. viii., fig. 118.

♂. Blackish-bronze, parts of under-surface with a greenish gloss; labrum, palpi (apical joint excepted), and part of antennae reddish or flavous, parts of legs obscurely diluted with red. Rather densely clothed with snowy-white pubescence, denser on flanks of metasternum than elsewhere, but on the elytra becoming rather thin scales, and which are compacted into numerous small, evenly-distributed fascicles.

Head wide; with small and sparse, more or less concealed punctures; without median line; clypeus indistinctly separated from the face; labrum short. Eyes of moderate size, widely separated, distinctly notched. Antennae thin, extending to about second segment of abdomen; first joint rather stout, as long as third, second more than half the length of third, third to fifth subequal in length, the following ones somewhat longer. *Prothorax* about twice as wide as the median length, base bisinuate, sides almost straight, slightly narrowed in front, front angles produced and acute, hind ones acute; with small are not very dense punctures. *Elytra* elongate-oblong, not much wider than prothorax; with dense and not very large, but sharply-defined punctures, becoming larger and more or less confluent at basal third. *Abdomen* rather sparsely clothed along middle, apical segment rather strongly incurved to middle of apex, with a wide but rather shallow median impression. *Femora* stout, front pair strongly dentate, the hind pair less strongly dentate but conspicuously angulate, middle pair unarmed; hind tibiae long, lower-surface at about one-third from apex with an acute tooth, the line of the tibiae then altered; four front tarsi with basal joint somewhat inflated, claws each with a stout basal appendix. Length (♂, ♀), 6-6½ mm.

♀. Differs in having abdomen more convex, more regularly clothed along middle, apical segment not transversely impressed, femora less stout, hind tibiae unarmed on lower-surface, and the apical curvature regular, and the tarsi with basal joint less inflated.

Hab.—Western Australia: Cue (H. W. Brown). Type, I. 3411.

The front angles of the prothorax as seen from the sides appear to be rather acutely produced, but from below they appear like large conical teeth, very different to those of any other species of the genus, but the prosternal episterna have the front edge quite straight, although slightly oblique, the front coxae are very close to the front of the prosternum, and not much more distant from the base. On the male the basal joint of antennae, most of the eleventh and the tips of some of the others are infuscated; on the female the basal joint and the apical half (or more) are infuscated; the knees, trochanters, and claws are usually of a dingy-red, but sometimes are scarcely paler than the adjacent parts. My reference of the species to *Edusa* may be called in question. The general outlines, from above, are much as those of several species of *Megasceloides*, but the dentate femora and hind tibiae should exclude the species from that genus.

EDUSA GRIFFITHI, n. sp.

♂. Brassy or bronzy, under-surface sometimes with a vague greenish gloss; parts of labrum, of palpi, of antennae, and of legs, of a more or less dingy-red. Rather lightly (more densely on parts of under-surface than elsewhere) clothed with white pubescence, becoming scales on elytra.

Head shagreened; with dense punctures of moderate size, longitudinally or obliquely confluent about base, rather larger and sparser between eyes, and smaller and denser on clypeus than elsewhere; median line feeble or absent. *Prothorax* rather strongly convex, sides evenly rounded, front angles acute, hind ones obtuse; with dense but not very large punctures, becoming conspicuously transversely or obliquely confluent on sides. *Elytra* not much wider than prothorax; with rather large punctures, more or less conspicuously transversely confluent, except on parts of the apical slope. *Abdomen* glabrous along middle, apical segment with a transverse impression. Front *femora* lightly dentate; basal joint of four front tarsi distinctly inflated. Length (♂, ♀), 5¾-7¼ mm.

♀. Differs in the abdomen and tarsi.

Hab.—Western Australia: Perth (H. H. D. Griffith), Capel River (W. D. Dodd), Darling Ranges (A. M. Lea). Type, I. 3469.

The front femora are certainly dentate, but the tooth is invisible from most directions. I have, however, placed the species in the table with those having conspicuously dentate femora, as from certain directions the tooth is seen to be the culmination of a widely angulate space. Joints two to four of the antennae, and the lower portion of the first are usually conspicuously paler than the others; the tibiae are usually entirely of a dingy-red, but sometimes their tips are deeply infuscated; the knees and trochanters are also usually reddish. The elytral scales are somewhat unevenly distributed, but are nowhere fasciculate in arrangement; they are rather denser on the sides and apical half than elsewhere. The front margin of the labrum from some directions appears to be evenly rounded, but from others finely serrated. On the prothorax, owing to the irregularity of the punctures on the disc, there appear to be feeble tubercular elevations.

EDUSA PALPALIS, n. sp.

Pl. viii., fig. 119.

♂. Brassy-purple, some parts coppery, clypeus metallic-blue in front, posteriorly becoming green, then coppery; labrum, palpi (tips infuscated), antennae (tips of many of the joints blackish), and legs more or less reddish. Upper-surface with moderately dense, but somewhat unevenly distributed, whitish, depressed pubescence.

Head shagreened; punctures dense but small and indistinct, median line distinct in front, but feeble elsewhere; clypeus depressed, highly polished, at base with some small and fairly distinct punctures, but scarcely traceable elsewhere. *Prothorax* shagreened; with strongly rounded sides, hind angles rounded, front subdentate; with small punctures. *Elytra* with sides gently rounded; punctures not very large, but transverse rugulosity very conspicuous almost throughout. *Abdomen* widely glabrous along middle, apical segment with a deep transverse impression. *Femora* very stout, front pair strongly dentate; middle tibiae more strongly dilated to near apex than the others, hind ones with the apical third cut away on upper-surface and excavated along same; four front tarsi with basal joint distinctly inflated, the hind ones decidedly longer than usual. Length (♂, ♀), 5-6 mm.

♀. Differs in having the hind tibiae at apex similar to the middle pair, the palpi smaller and less securiform, and in the abdomen and tarsi.

Hab.—Western Australia (F. H. du Boulay). Type, I. 3226.

Allied to *meyricki*, but differs in the front femora of both sexes being strongly dentate, hind tibiae of male very different at apex, and apical fovea of abdomen more transverse. The apical joint of each maxillary palpus of the male is wide and truncate at the apex, much as on many *Heteromera*, those of the female are more ovate, but still truncate at apex; the labial palpi are smaller but otherwise much the same. The specimens sent were either from Kalgoorlie or Beverley.

EDUSA SERICEA, n. sp.

Pl. vii., fig. 66.

♂. Brassy or coppery or golden-bronze, head metallic-green in front, coppery-green elsewhere; labrum and appendages (tip of antennae and claws excepted) reddish or flavous. Rather densely clothed with uniform, depressed, silken pubescence, becoming white on under-surface.

Head shagreened; punctures scarcely traceable; median line distinct but very feebly impressed. *Prothorax* shagreened, sides feebly rounded, front angles acute; punctures minute and scarcely visible before abrasion. *Elytra* suboblong; punctures dense and mostly small, frequently concealed before abrasion, fairly large only about basal third, and nowhere transversely confluent. *Abdomen* widely glabrous along middle, apical segment with a conspicuous transverse impression, slightly interrupted in middle. Front *femora* strongly dentate; basal joint of four front tarsi somewhat inflated. Length (♂, ♀), 5-6 mm.

♀. Differs in the abdomen and tarsi.

Hab.—Western Australia (Blackburn's collection), Beverley (F. H. du Boulay and A. M. Lea), Swan River, Darling Ranges (Lea). Type, I. 3225.

Although without any strikingly distinctive feature, this species has yet a very unusual appearance, owing to the sides of the prothorax being but very feebly rounded in the middle. The under-surface varies from brassy to dark metallic-green. Each side of the head, adjacent to the clypeus, has one or two small impunctate spaces, looking like highly-polished tubercles, somewhat similar but less conspicuous spaces are to be seen on many other species of the genus. The four hind femora are narrowly ridged along the middle, but each ridge does not culminate in a tooth.

EDUSA IMPRESSICEPS, n. sp.

♂. Golden-red, or coppery-red, the punctures sometimes with a greenish gloss; under-surface black, with a purplish or bronzy gloss, labrum, palpi (apical joint excepted), basal half (or less) of antennae and legs (claws excepted) more or less reddish. Moderately clothed with very fine, uniformly distributed, silken pubescence.

Head feebly shagreened: with dense, clearly-defined, and uniform, but rather small punctures; median line conspicuous throughout and becoming rather deep in front. *Prothorax* with front angles somewhat acute: punctures much as on clypeus. *Elytra* suboblong; with dense and rather large punctures, larger and irregularly confluent about basal third, and smaller but inconspicuous striae on apical slope. *Abdomen* glabrous along middle, apical segment with a wide shallow impression. Front *femora* strongly dentate: basal joint of four front tarsi somewhat inflated. Length (♂, ♀), 6½-8 mm.

♀. Differs in having shorter antennae, and in the abdomen and tarsi.

Hab.—New South Wales: Blue Mountains (Macleay Museum and E. W. Ferguson), Jenolan (J. C. Wiburd). Type, I. 3470.

The very tip of the clypeus and a median line on the head are sometimes greenish; the suture is usually very narrowly greenish, and one specimen has a green scutellum. On two specimens the femora are almost entirely black, with a slight metallic gloss. Although on the larger scale in the genus the elytral clothing is nowhere squamose or fasciculate in character. The elytral punctures are mostly in irregular rows, of which a few are subgeminate in arrangement.

Two specimens from Guyra (H. J. Carter) perhaps represent a variety: they differ in being smaller (6 mm.), of a purplish-red, elytra nowhere greenish, six apical joints of antennae and part of the first dark, legs entirely black with a slight metallic gloss, and the punctures on the head decidedly smaller.

EDUSA DISPAR, n. sp.

♂. Brassy-green, sometimes with a bluish gloss: undersurface more or less brassy, clypeus of a vivid-green, labrum and appendages (tip of antennae and claws excepted) more or less reddish. Moderately clothed with fine, depressed, whitish pubescence.

Head with rather small and shallow punctures; median line feebly impressed towards base, and dilated (but very shallow) in front; clypeus highly polished, in places with small but clearly-defined punctures. *Prothorax* about thrice as wide as long, front angles rather feeble, a vague depression towards each side; punctures small but fairly distinct. *Elytra* suboblong; with rather large punctures, more or less transversely confluent about base, but becoming small and ill-defined posteriorly. *Abdomen* with apical segment transversely impressed. Front *femora* strongly dentate: basal joint of four front tarsi inflated. Length, 4-4½ mm.

♀. Differs in being larger (4¾-5½ mm.) and brassy (the front of the clypeus sometimes brassy-green), antennae somewhat shorter, and in the abdomen and tarsi.

Hab.—Western Australia: Perth (H. H. D. Griffith), Warren River (W. D. Dodd), Karridale, Darling Ranges (A. M. Lea). Type, I. 3228.

A beautiful species, the female consistently larger and brassier than the male.

EDUSA METALLICA, n. sp.

♂. Coppery-bronze; tip of clypeus green, labrum and appendages (tip of antennae and claws excepted) more or less reddish. Moderately clothed with whitish pubescence, denser and more conspicuous on odd interstices of elytra than elsewhere, and mixed on elytra with numerous longer hairs.

Head shagreened, with dense and small but fairly distinct punctures; median line fairly distinct in front, becoming feeble towards base. *Prothorax* shagreened and with punctures as on head. *Elytra* suboblong, considerably wider than prothorax; with geminate rows of strong punctures, becoming smaller posteriorly, but striation more evident on apical slope, the interspaces (except between the geminate rows) with as large, or almost as large punctures as in the rows. *Abdomen* widely glabrous along middle, apical segment with a wide shallow impression. Front *femora* strongly dentate; basal joint of four front tarsi strongly inflated. Length (♂, ♀), 6-7¼ mm.

♀. Differs in being more robust, antennae somewhat shorter, and in the abdomen and tarsi.

Hab.—Victoria: Dividing Range (Blackburn's collection), Kewell (J. Kershaw), Fern Tree Gully (T. Kershaw). Type, I. 3471.

In Blackburn's table would be associated with *lineata*, but differs from that species in being consistently larger, and by the conspicuous rows of rather strong punctures in well-defined striae. One large specimen is darker than the others, but except for this the metallic colour is singularly constant in numerous specimens. The depression on the apical segment of abdomen of the male is not very deep, but is very conspicuous on account of being of a bluish colour, while the sides are brassy. On the female the basal joint of each tarsus is decidedly larger than is usual in that sex, but those of the four front ones are distinctly smaller than on the male.

EDUSA VIRGATIPES, n. sp.

♂. Colours variable. Moderately clothed with short, depressed, whitish pubescence, becoming quite white on under-surface; elytra with numerous long erect blackish hairs, becoming shorter but not much sparser on prothorax.

Head shagreened; with dense, small, and rather feeble punctures, more clearly defined on clypeus than elsewhere; median line moderately distinct in front, feeble at base. *Prothorax* shagreened and punctured as head. *Elytra* suboblong, much wider than prothorax; with rather large but not confluent punctures about basal third, becoming smaller towards base and suture, and much smaller elsewhere. *Abdomen* widely glabrous along middle, apical segment rather feebly depressed in middle, but the depressed part of a darker colour than the sides. Front *femora* strongly dentate; basal joint of four front tarsi very conspicuously inflated. Length (♂, ♀), 5½-6½ mm.

♀. Differs in the abdomen and tarsi.

Hab.—New South Wales: Blue Mountains (Blackburn's collection, Macleay Museum, E. W. Ferguson, and H. J. Carter), Jenolan (J. C. Wiburd), Mount Victoria (A. M. Lea). Type, I. 3171.

The colours are very variable, and whilst decidedly metallic are seldom brightly so. The front tibiae are always reddish on the under-surface and dark on the upper; the femora are more or less reddish at the base, the antennae have the tip black, and the five or six preceding joints (independently of sex) varying from almost entirely pale to entirely infuscate, the basal joint is dark on its upper-surface; the apical joint of each palpus is conspicuously black. The commoner forms (the type belongs to the first) are as follows:—

1. Metallic-green, with (or without) a vague bluish tinge, under-surface and legs more or less brassy.

2. Dark-bronze, head brassy-green in front, under-surface in places with a brassy-green gloss.

3. Coppery or purplish-bronze, scutellum greenish, head and under-surface as on Form 2.

4. Brassy-green, prothorax more brassy than green.

A male of this variety in Mr. Carter's collection has the front tibiae almost entirely pale.

5. Purple.

There are also many intermediate forms, but the species may be readily distinguished by the long blackish hairs scattered amongst the elytral pubescence, and by the longitudinally striped front tibiae.

EDUSA CHALCEA, n. sp.

♂. Brassy, sometimes with a golden or purplish gloss: head of a vivid-green in front, becoming brassy towards base: labrum and appendages (tip of antennae and claws excepted) flavous or reddish. Densely clothed with short, depressed, whitish pubescence, becoming snowy on under-surface: elytra with longer but not very conspicuous hairs scattered about.

Head shagreened; with dense, minute, and indistinct punctures, rather feebly defined even on clypeus; median line feeble and narrow. *Prothorax* shagreened and punctured as head. *Elytra* suboblong; with dense and small punctures, becoming of moderate size, but not transversely confluent, about basal third. *Abdomen* glabrous along middle, starting with a depressed space at middle of apex of first segment, fourth depressed at apex, fifth with an almost continuous transverse impression. Front *femora* strongly dentate: basal joint of four front tarsi strongly inflated. Length (♂, ♀), 4½-5¼ mm.

♀. Differs in the abdomen and tarsi.

Hab.—Queensland (British Museum, from — Damel), Rockhampton (Macleay Museum), Bundaberg (Blackburn's collection). Type, I. 3221.

In general appearance close to *suaveola*, but darker, and male with a medio-apical depression on basal segment of abdomen, viewed from the side it is well defined: on the males of *suaveola* and of the following species there is no such depression; the fourth segment is also different.

EDUSA TURNERI, n. sp.

♂. Bronze or purplish-bronze, in some places with greenish reflections: clypeus of a vivid-green: labrum and appendages (tip of palpi), of antennae, and the claws excepted) more or less reddish. Rather densely clothed with short, depressed, silken pubescence, becoming white on under-surface: elytra with some longer hairs scattered about, but rather indistinct, except posteriorly.

Head shagreened; punctures dense, small, and ill-defined, even on clypeus: median line feeble. *Prothorax* shagreened and punctured much as head. *Elytra* suboblong, distinctly wider than prothorax, vaguely striated: with dense and small punctures, becoming larger in the rows toward base, and larger about basal third than elsewhere, but not transversely confluent. *Abdomen* glabrous along middle, fourth segment feebly depressed at apex, fifth strongly incurved at apex, and with a conspicuous transverse impression, slightly deeper at sides than in middle. Front *femora* strongly dentate; basal joint of four front tarsi moderately dilated. Length, 5 mm.

♀. Differs in the abdomen and tarsi.

Hab.—New South Wales: Ben Lomond (A. Jefferis Turner). Type, I. 3472.

In general appearance fairly close to *suaveola*, but darker and less conspicuously metallic, median line on head less conspicuous, and transverse impression of abdomen of male with a slight depression at each end, instead of with a median one as on that species. On some specimens there appears to be a play of purplish and green colours almost as on a soap-bubble.

EDUSA DISCICOLLIS, n. sp.

Pl. viii., figs. 165 and 166.

♂. Metallic-green, head and prothorax subopaque; under-surface brassy-green or brassy, labrum and appendages reddish, but tips of palpi and tips of five apical joints of antennae blackish. Head and prothorax moderately, the elytra densely, clothed with stramineous pubescence, the elytra in addition with numerous long, suberect hairs of similar colour.

Head flat: shagreened and minutely punctate. Antennae very long and thin. *Prothorax* shagreened and punctate as head; fully thrice as wide as the median length, sides evenly but not strongly rounded, quite flat in middle. *Elytra* rather long and parallel-sided to near apex: with rather dense but not very large punctures, in regular or almost regular rows on most of the surface, although in striae only on parts of the apical slope, larger and more distinctly confluent (although not separated by distinct transverse ridges) behind shoulders than elsewhere. *Abdomen* with apex of each segment glabrous in middle, fifth transversely depressed across middle, the depression shallow, especially in its middle. *Femora* stout, front pair strongly dentate; hind tibiae with apical slope oblique or feebly rounded; basal joint of four front tarsi inflated. Length, 6-6½ mm.

♀. Differs in having the abdomen more convex, nowhere glabrous, fourth segment shorter than the adjacent ones, and the fifth with the depression less transverse and with a slight swelling behind it on each side of apex, apical slope of hind tibiae more abrupt, and in the tarsi.

Hab.—New South Wales: Blue Mountains (Blackburn's collection and H. J. Carter). Type, I. 3637.

In the table associated with *suaveola* and *turneri*, but larger, prothorax more depressed, antennae much longer, etc.

In build and clothing it is much like *virgatipes*, but the legs are entirely pale, and the abdomen of the male is somewhat different. From *perplexa*, and all its varieties, it differs in being larger and elytra with numerous hairs amongst the pubescence. On one specimen the clothing is almost white. The elytral punctures from some directions appear to be in quite regular rows, but this appearance is less noticeable about the basal third, owing to the punctures there having a tendency to become transversely confluent. The basal joint of the four hind tarsi of the male is lop-sided, of the female only on the hind pair.

EDUSA SECURIGERA, n. sp.

Pl. vii., figs. 60, 67, and 68.

♂. Of a rather dark metallic-green; labrum and appendages flavous, but tip of antennae infuscated. Elytra with suberect pubescence.

Head with dense, sharply-defined punctures of moderate size, a few becoming confluent posteriorly. Antennae rather long and thin, second joint stouter and shorter than third. Apical joint of each palpus inflated to and truncate at apex. *Prothorax* scarcely twice as wide as the median length; with crowded and rather coarse punctures; sides uneven. *Scutellum* very small and sparsely punctate. *Elytra* rather elongate; with crowded and rather large punctures, most of which are more or less transversely confluent. *Prosternum* with dense, well-defined punctures, larger on flanks than elsewhere. *Abdomen* with fourth segment distinctly larger than the adjacent ones, the fifth with a wide median impression. *Femora* stout, front pair strongly dentate; tibiae rather long and thin; basal joint of four front tarsi lightly inflated. Length, 3½-4 mm.

♀. Differs in being more robust, more or less brassy, prothorax more than twice as wide as the median length, apical joint of palpi much thinner, abdomen more convex, fourth segment shorter than the adjacent ones, and the fifth shallowly depressed in middle of base and the apex upcurved.

Hab.—New South Wales: Dorrigo (W. Heron). Type, I. 3638.

The securiform palpi of the male resemble those of many *Heteromera*, but the palpi of the female are almost normal. On the male of *palpalis* (which otherwise is quite an ordinary *Edusa*), and to a certain extent on the males of several other species they are similar, so that it appears desirable to regard the species as an aberrant *Edusa*. It might have been referred to *Geloptera;* of the three specimens before me the female has the sides of the prothorax feebly tridentate about the middle, one male has each side very feebly bidentate there, and on the other male one side is subangulate (much as on *heterodoxa)*, but the other is very feebly tridentate. On one male the abdomen is not much darker than the legs, except that the basal segment is greenish in the middle, on a second specimen only the apical segment is pale, the rest of the under-surface being more or less brassy; on the female the abdomen is reddish, with a slight metallic gloss, and the sterna are golden-red. The elytral pubescence is not dense, but being suberect and almost evenly distributed in subseriate rows, it is quite conspicuous; the prothorax, however, is almost glabrous. On the female the median line of the head is well defined, but on the male it is feeble. On the male the pygidium appears to add a short sixth segment to the abdomen. About the base and on the apical slope most of the elytral punctures are separately impressed, but on the slope they are confined to well-defined striae, although these (except near the suture) are somewhat irregular.

GELOPTERA (type *tuberculata)*.
TERILLUS (type *rotundicollis)*.
ALITTUS (type *foveolatus)*.
AGETINUS *(Agetus* n. pr.; type *subcostatus)*.
HYPODERES (type *denticollis)*.

Of the above genera their typical species are indicated, and of these *tuberculata* is a well-known and abundant species in Western Australia; *subcostatus* is a well-known and abundant species in South Australia, Victoria, and Tasmania; and *denticollis* is a well-marked species, occurring in northern New South Wales and southern Queensland. I am unacquainted with *rotundicollis:* but elsewhere am commenting upon *foveolatus*.

According to Lefevre, the genera in question all agree in the following details, regarded by him as generic:—"Prosternal episterna with front margin straight or concave. Base of prosternum straight or arcuately truncate. Femora unarmed.(81) Tibiae (at least the middle pair) longitudinally carinate, the four hind ones not notched near outer apex. Claws appendiculate." And a table based on differences as noted by himself and Chapuis would be as follows:—

Upper-surface clothed.	
Prothorax with sides entire.	
Prothorax with sides straight	*Alittus*
Prothorax with sides rounded in middle ...	*Terillus*
Prothorax with sides more or less dentate or undulated	*Hypoderes*
Upper-surface glabrous.	
Antennae with joints two and three subequal ...	*Agetinus*
Antennae with these joints very different in length	*Geloptera*

---

(81) Several species with armed front femora have been referred to *Geloptera*.

But as the genera at present stand there are exceptions to every one of these characters. That they will all be maintained I am exceedingly doubtful. That the late Rev. T. Blackburn considered the armature of the sides of the prothorax and the clothing of the upper-surface as of only specific importance in the subfamily is proved by his referring to *Edusa* a species *(singularis)* whose prothorax is quite acutely armed, in addition to its upper-surface being entirely glabrous; he also referred other glabrous species to that genus.

GELOPTERA.

To this genus Baly originally referred two species, *tuberculata* (noted as the type) and *geniculata*. The latter, in Masters' Catalogue, is placed as an *Agetinus*. Jacoby has referred to *Geloptera*, a well-marked Queensland species *(albertisi)*, which I am satisfied is congeneric with *geniculata*. There are in the Museum numerous species (82) whose generic features are so weak that they might be referred to several genera, but I refer them all to *Geloptera*. They are all more or less coarsely punctured, and more or less irregularly striated, but the striae are usually deep and regular on the apical slope of elytra. The comparative lengths of the antennae and the proportions of the joints are seldom of use in distinguishing the species, the second joint is nearly always much shorter than the third. The sides of the prothorax are usually distinctly toothed in the middle, but sometimes only gently undulated. They may be placed in divisions, characterized as follows:—

Div. 1.—Upper-surface glabrous. (83) Eyes distinctly notched. Sides of prothorax dentate or subdentate about middle. Front of prosternal episterna oblique, or feebly rounded, or feebly incurved. Femora edentate; tibiae dilated to apex, longitudinally canaliculate (the middle pair usually more distinctly so than the others), the four hind ones not notched near outer apex; claws each with a large basal appendix.

Div. 2.—With the specified characters of *Div. 1*, except that the front femora are dentate (two species, however, *illidgei* and *lateridens*, are extremely feebly clothed on the apical slope of elytra).

Following is a table of the species in the Museum, with the exception of *scitula*:—

---

(82) Of these *porosa* was identified by the late Rev. T. Blackburn as a *Geloptera*.

(83) The head, however, is occasionally feebly clothed.

A. Front femora armed.
a. Each side of prothorax with two distinct notches about middle .. *latericollis*
aa. Without such notches.
b. Elytra tuberculate.
c. Basal segment of abdomen of male conspicuously armed in middle *tibialis*
cc. Basal segment not armed ... ... *albertisi*
bb. Elytra non-tuberculate.
d. Sides of prothorax undulated but not conspicuously dentate *concinna*
dd. Sides angulate in middle but not dentate . . .. *angulicollis*
ddd. Sides conspicuously dentate.
e. Each side with one tooth at middle ... ... *illidgei*
ee. Each side with two teeth about middle.
* Fifth segment of abdomen of male with a feeble median depression *lateridens*
** That segment with a distinct fovea ... . *jugularis*
AA. Front femora unarmed.
B. Elytra with some of the median striae distinct from base to apical sl
f. Of moderate size.
* Elytra immaculate ... . *striatipenni*
** Elytra with infuscate spots ... ... *tetraspilota*
ff. Of minute size.
g. Pale ... . *minima*
gg. Dark ... ... *pallipes*
BB. Elytra with no median stria distinct from base to apical slope.
C. Elytra with many punctures transversely confluent on apical slope.
h. Sides of prothorax not dentate in middle ... ... *hardcastlei*
hh. Sides dentate in middle.
i. Basal tooth larger than median ones ... ... *duboulayi* (?
ii. Basal tooth smaller than median ones ... ... *igneonitens*
CC. Elytra without transversely confluent punctures on apical slope.
D. Elytra with isolated tubercles on apical slope.
j. Large and robust ... . *tuberculata*
jj. Much smaller and narrower ... ... *nodosa*
DD. Elytra without isolated tubercles on apical slope.
E. Elytra about middle with more or less tubercular elevations.
k. The tubercles there conspicuously elevated ... . *qualis*
kk. The tubercles there feebly elevated.
l. Basal segment of abdomen of male armed in middle of apex . *miventris*
ll. Basal segment of male unarmed.

m. Antennae infuscated in middle, and paler between same and apex ... *mediofusca*
mm. Antennae not infuscated in middle, or, if so, then infuscation continued to apex ... ... *orientalis*
E. Elytra without tubercular elevations about middle.
F. Elytral punctures unusually dense and coarse.
n. Only the subsutural stria distinct on apical slope ... ... *geniculata*
nn. At least three subsutural striae distinct there.
o. Abdomen of male highly remarkable ... ... *miracula*
oo. Abdomen of male not remarkable.
p. Sides of prothorax unidentate in middle ... ... *porosa*
pp. Sides bidentate in middle ... ... *punctatissima*
FF. Elytral punctures not unusually dense and coarse.
G. Hind tibiae of male each with a long and very conspicuous apical bristle *setifera*
GG. Hind tibiae of male without such.
H. Basal segment of abdomen of male with a large, obtuse, median tubercle *tuberculiventris*
HH. Basal segment of male without such.
I. Hind tibiae of male with a recurved hook at apex ... ... *uncinata*
II. Hind tibiae of male without such.
J. Tibiae of male infuscated in middle ... ... *coatesi*
JJ. Tibiae of male not infuscated in mid
K. Abdomen of male with a double ol e ridge on each side of intercoxal process ... ... *basiventris*
KK. Abdomen at most with a single ridge there.
L. Apex of hind tibiae of male much wider than apex of middle pair.
q. Striation of apical slope conspicuous throughout ... ... *semistriata*
qq. Striation of apical slope much less regular about summit of same ... ... *rhaebocnema*
LL. Apex of hind tibiae of male scarcely if at all wider than apex of middle pair.
M. Pale and not conspicuously metallic ... ... *eluta*
MM. Dark and conspicuously metallic.
N. Each side of prothorax distinctly bidentate in middle ... *bidentimedia*
NN. Each side at most feebly unidentate in middle.
O. Of minute size ... ... *microcalla*
OO. Of moderate size.
P. Ridges of intercoxal proces abdomen of male convex outwardly ... ... *intercoxalis*
PP. Ridges convex inwardly ... ... *composita*

NOTES ON TABLE.

A. The sides of the prothorax of *jugularis* are variable, but most specimens of it would be associated with *lateridens*; it is, however, a very distinct species, and widely separated geographically from all others of A.

B. The striae of *striatipennis* contain in parts two irregular rows of punctures; and on many species irregular rows of punctures are traceable throughout, but it is usually only on the apical slope that the striation becomes pronounced.

E. On *armiventris* and *mediofusca* the tubercular elevations are very feeble, but as they are differently coloured to the adjacent parts, and impunctate, they are fairly distinct.

FF. *Scitula* should be included here, but was omitted as its male is unknown.

I. The hook at the apex of the hind tibiae of *uncinata* is very conspicuous from certain directions, but owing to the adjacent clothing it is partly concealed from others.

GELOPTERA GENICULATA, Baly.

Agetus corinthius, Lef.

Pl. vii., fig. 69.

In Masters' Catalogue *geniculata* is given as a synonym of *Colaspis corinthius*, Boi. It is an abundant species in Western Australia, from the Swan River to King George Sound, and I have seen it from no other State. But *C. corinthius* was described by Boisduval from New Guinea. The original description is quite useless for purposes of identification, as it would apply to many species of the subfamily; but, if the locality given be correct, I cannot believe that it is identical with *geniculata*. But *Agetus corinthius*, Lef.,(84) described as from King George Sound, is certainly synonymous with that species.

GELOPTERA TUBERCULATA, Baly.

Pl. vii., fig. 84.

A very abundant species in Western Australia, and although normally living on eucalypti, it has frequently been known to do serious injury to almond and apple trees.

GELOPTERA NODOSA, Clark (1865).

Terillus vittatus, Baly (1877).

(?) *T. rotundicollis*, Chp. (1874).

Pl. vii., fig. 83.

Mr. Arrow sent for examination a specimen of *Terillus vittatus*, labelled both as "Type" and "Co-type" (evidently the latter, although it agrees exactly with the description), with a locality label "Albany River" (evidently, however, Albany or King George Sound). It was recorded as from Rockhampton, in Queensland, but evidently in error. A specimen from Beverley in the Museum belongs to the same species, but its prothorax has but four small tubercles near the apex, instead of six, and the sublateral foveae much reduced in size, although traceable; the post-humeral foveae of its elytra are also much less conspicuous than on the co-type; on another specimen there are but two small subapical tubercles on the prothorax. The species occurs from the Swan River to King George Sound, and varies in length from 5 to 7 mm. It was previously named *nodosa* by Clark; and it is possibly also the species named *Terillus rotundicollis* by Chapuis.

---

(84) I have only seen a written copy of Lefevre's description, without comments.

GELOPTERA JUGULARIS, Er. (formerly *Colaspis*). (85)

Edusa singularis, Blackb.

Pl. vii., fig. 70.

A fairly common species in Tasmania and the mountainous parts of Victoria. The commonest form is bronzy, sometimes with a brassy gloss; but the species varies to golden-red, green, brassy-green, blue, and deep purple. The uneven sides of prothorax and glabrous upper-surface are at variance with *Edusa*, to which genus it was referred by Blackburn.

Division 1.

GELOPTERA INAEQUALIS, n. sp.

♂. Of a coppery-bronze, in places with greenish reflections; antennae infuscated, two basal joints and tips of the four following ones flavous: legs varying in places from flavous to bronze.

Head with several slightly-elevated impunctate spaces, elsewhere with fairly large irregularly distributed punctures, denser and smaller on clypeus than elsewhere. Eyes large. *Prothorax* uneven, with three conspicuous impunctate elevations and some very irregular smaller ones; punctures fairly large but very irregularly distributed; each side with two very feeble teeth about middle. *Elytra* very uneven; each with a fairly large tubercle about middle, shoulder subtuberculate, between same and suture an elevation with three or four ridges, apical slope conspicuously striated, the interstices there conspicuously elevated and of irregular widths; punctures rather dense, large, and irregular. Basal segment of *abdomen* with an interrupted longitudinal median ridge, fourth segment elevated in middle of apex, fifth transversely impressed. Length (♂, ♀), 5-5½ mm.

---

(85) In Masters' Catalogue standing under *Agetinus*.

♀. Differs in having somewhat smaller eyes, and more strongly convex and simple abdomen.

Hab.—Queensland: Cairns (A. M. Lea). Type, I. 3485.

With more conspicuous tubercles than usual and in very different positions to those of *albertisi*. The knees are more or less metallic, the tibiae are pale at the base and gradually darken to near apex, when they suddenly become much paler. The impunctate spaces on the head are not alike on any of the three specimens in the Museum.

GELOPTERA ARMIVENTRIS, n. sp.

♂. Of a greenish-bronze, the elevated parts more or less coppery; labrum and appendages of a more or less dingy-flavous, but tips of some antennal joints, tarsi, and knees infuscated.

Head with dense punctures of small and moderate size intermixed. Eyes fairly large and conspicuously notched. *Prothorax* with dense and rather coarse punctures, but leaving two small impunctate spaces about middle; each side with two obtuse submedian teeth, angles rather distinctly armed. *Elytra* with punctures much as on prothorax; apical slope with regular striae and conspicuously elevated interstices, elsewhere with remnants of same. *Abdomen* with an acutely conical tubercle at middle of apex of basal segment, fourth elevated in middle of apex, fifth depressed in middle and encroaching on third. Hind *tibiae* with a conspicuous obtuse spur at inner apex. Length, 5 mm.

Hab.—Queensland: Coen River (W. D. Dodd). Type (unique), I. 3486.

In general appearance like *tibialis*, and abdomen of male also with basal segment armed, but front femora edentate, and hind tibiae different at apex. The striation of the elytra is very pronounced posteriorly.

GELOPTERA MEDIOFUSCA, n. sp.

♂. Of a greenish-bronze, the elevated parts more or less coppery; labrum and appendages more or less flavous, but middle of antennae and knees infuscated.

Head with rather numerous punctures of moderate size; a shallow impression between eyes; these rather lightly notched. *Prothorax* with dense and rather coarse punctures; each side with a small median tooth. *Elytra* with punctures mostly slightly larger than on prothorax; apical slope with regular striae and rounded interstices, only traceable as remnants elsewhere. Basal segment of *abdomen* depressed in middle, fourth elevated in middle of apex, fifth depressed in middle. Length (♂, ♀), 3½-4 mm.

♀. Differs in having somewhat smaller eyes, shorter legs, and more strongly and evenly convex abdomen.

Hab.—Queensland: Cairns district (A. M. Lea). Type, I. 3487.

On two females the tibiae and tarsi are rather deeply infuscated.

GELOPTERA ORIENTALIS, n. sp.

Pl. vii., figs. 71 and 72.

♂. Of a livid-brown with a bronzy or bronzy-green gloss, subtuberculate parts of prothorax and of elytra darker; labrum and appendages flavous, knees, and sometimes other parts of legs, and apical parts of antennae infuscated.

Head with numerous (but not crowded) punctures of moderate size, becoming smaller and more crowded about base. *Prothorax* somewhat uneven, a shallow depression towards each side, a small submedian tooth on each side; with dense and fairly coarse punctures. *Elytra* with well-defined but somewhat irregular striae and punctures on apical slope, elsewhere with but remnants of same; punctures much as on prothorax. *Abdomen* flattened along middle, fifth segment transversely impressed. Length (♂, ♀), 3½-6 mm.

♀. Differs in having the abdomen more strongly and evenly convex, and in the basal joint of four front tarsi being much smaller.

Hab.—Queensland: Brisbane (Blackburn's collection, A. J. Coates, T. McGregor, and A. J. Turner), Gympie (R. Illidge), Mount Tambourine; New South Wales: Wollongong, Gosford, Galston (A. M. Lea), Sydney (H. J. Carter and British Museum). Type, I. 3488.

Frequently only the basal half of each femur is conspicuously flavous; sometimes only the three basal joints of antennae are entirely pale. On each of the three or four basal segments of abdomen of the male there are some long conspicuous hairs, and these form a straggling row on each side of the middle. Similar hairs are to be seen on the males of many other species of the genus, but as they appear to be easily abraded it was usually not considered desirable to mention them. The submedian tooth on each side of the prothorax varies from being fairly acute to being a scarcely traceable angulation of the margin, and the one on the right sometimes differs from the one on the left. There are usually two or three fairly distinct impunctate spaces on the pronotum, but they are often absent. On each elytron the third interstice about the middle is feebly elevated and darker than the adjacent parts, so that it appears as a fairly well-defined depressed tubercle;

it is somewhat similarly defined about the base, and the fourth is somewhat similar but longer about summit of apical slope, each shoulder also appears to be subtuberculate.

Eight males (from Galston and Sydney) appear to belong to this species, but differ in being thinner, more depressed, and paler. On the apical segment of abdomen there is a distinct depression across most of its extent, and appearing subfoveate in middle; anterior to this there appear to be feeble tubercular swellings. On the typical form the median subfoveate impression is more than twice as wide, shallower, and the subtuberculate appearance is absent. One specimen (from Brisbane) has elytra of a rather pale-flavous, but with three series of elongated brassy spots, the first near base, the second before middle, and the third crowning the apical slope; its punctures are also decidedly coarser than usual.

GELOPTERA SETIFERA, n. sp.

Pl. vii., fig. 73; pl. viii., fig. 120.

♂. Of a livid-brown or testaceous, with a bronzy-green gloss, but some parts bronzy-green; appendages paler.

Head with punctures of moderate size but not very dense, becoming denser and smaller about base and on clypeus; shallowly impressed between eyes; these rather conspicuously notched. *Prothorax* somewhat uneven, usually with two or three small impunctate spaces, each side with two small submedian teeth; punctures dense and rather coarse, denser on sides than in middle. *Elytra* with well-defined striae and interstices on apical half, elsewhere punctures more or less irregularly distributed. *Abdomen* depressed along middle, intercoxal process with a distinct ridge on each side, its end appearing as a subconical tooth, fourth segment shallowly foveate in middle, fifth elevated in middle of apex. Hind *tibiae* each with a small recurved hook, and a long apical bristle; basal joint of four front tarsi strongly inflated. Length, 4-4½ mm.

♀. Differs in having the abdomen evenly convex and simple, hind tibiae without apical hook and bristle, and basal joint of four front tarsi much smaller.

Hab.—Queensland: Mackay (R. E. Turner), Bundaberg, Cairns district (E. W. Ferguson and A. M. Lea), Cairns, Rockhampton (Macleay Museum). Type, I. 3036.

The abdomen of the male appears to be composed of six segments owing to the pygidium strongly encroaching on the fifth, across the middle of the pygidium there is a conspicuous ridge, and this from the sides appears as a subconical tubercle, the two basal segments have numerous long hairs in the middle

The hind tibiae are also very distinctive. The intensity of the colours varies considerably; on many specimens the head, prothorax, metasternum, and abdomen appear to be of a livid-brown, with a distinct metallic gloss, on others the colour is so much darker that they appear to be almost black, with a conspicuous greenish gloss; the knees (frequently only the hind ones), some (or none) of the tarsal joints, and the tips of from one to five of the apical joints of antennae are more or less infuscated.

GELOPTERA TUBERCULIVENTRIS, n. sp.

♂. Of a livid greenish-bronze, the elevated parts more or less coppery: appendages flavous, some parts infuscated.

Head with several impunctate spaces, elsewhere with crowded punctures, denser at base and on clypeus than elsewhere. *Prothorax* somewhat uneven, with three small impunctate spaces, each side with two feeble submedian teeth; punctures dense and moderately large. *Elytra* with regular striae and interstices only on apical slope, but elsewhere the punctures (which are generally slightly larger than those on prothorax) frequently have a sublineate arrangement. Basal segment of *abdomen* with a large obtuse tubercle, fourth longer than second and third combined, fifth with a small median fovea. Hind *tibiae* curved, dilated and compressed in middle; basal joint of four front tarsi inflated. Length, 5-5½ mm.

♀. Differs in having the abdomen strongly and evenly convex, basal segment non-tuberculate, fourth no longer than third, fifth non-foveate, hind tibiae shorter and simple, and in the tarsi.

Hab.—Northern Queensland (Blackburn's collection), Brisbane (H. J. Carter), Mount Tambourine (A. M. Lea). Type, I. 3489.

Of the antennae the fourth to eleventh joints are each partly infuscated, the knees and middle of tibiae are also infuscated. At the basal third of elytra some of the punctures are transversely confluent.

GELOPTERA UNCINATA, n. sp.

Pl. vii., fig. 74; pl. viii., fig. 121.

♂. Colours much as in preceding species.

Head, *prothorax*, and *elytra* much as in preceding species, except that each side of the prothorax is obtusely undulated about the middle, leaving but one obtuse median tooth. Basal segment of *abdomen* depressed in middle, fifth very short in middle. Hind *tibiae* long, rather strongly curved about apex, terminated by a recurved hook, upper-surface longitudinally concave near apex; basal joint of four front tarsi strongly inflated, of the hind ones unusually long. Length, 4¾ mm.

Hab.—Northern Queensland (Blackburn's collection). Type (unique), I. 3490.

In general appearance strikingly close to the preceding species, but readily distinguished therefrom by the non-tuberculate abdomen. From *composita* the hooked hind tibiae are at once distinctive, the hook from some directions is partially concealed by setae, but from others is very conspicuous.

GELOPTERA COATESI, n. sp.

♂. Of a dark greenish-bronze, the elevated parts with a feeble coppery gloss; appendages flavous or testaceous, but eight apical joints of antennae, knees, and middle of tibiae more or less infuscated.

Head with dense and somewhat irregular punctures, denser and smaller at base and on clypeus than elsewhere. *Prothorax* and *elytra* much as in *tuberculiventris*. Basal segment of *abdomen* flattened in middle, fourth and fifth elevated in middle of apex. Basal joint of four front *tarsi* distinctly inflated. Length (♂, ♀), 5-5¼ mm.

♀. Differs in having abdomen more evenly convex, hind tibiae shorter and less curved, and basal joint of four front tarsi smaller.

Hab.—Queensland: Brisbane (C. McGregor and A. J. Coates), Cairns (E. Allen). Type, I. 3491.

In general appearance strikingly close to *composita*, with which I had at one time confused it, but readily distinguished by the hind tibiae of the male; these are longer, more curved, with different clothing, upper-surface different and thinner, and otherwise different towards and at apex. Parts of the under-surface are obscurely diluted with red. On the male there is a distinct depression, almost a fovea, between the eyes, on one female the depression is traceable, but from another it is entirely absent.

GELOPTERA INTERCOXALIS, n. sp.

♂. Of a vivid-green or brassy green; head and under-surface castaneous with a greenish gloss; appendages flavous, tip of palpi and tips of three (or more) of apical joints of antennae infuscated.

Head with dense and fairly coarse punctures between eyes, becoming smaller and denser at base and on clypeus, a shallow, irregular impression between eyes. *Prothorax* slightly uneven, sides feebly undulated and without distinct submedian teeth; with dense and coarse punctures on sides, smaller about middle, and leaving three almost impunctate spaces. *Elytra* with regular striae and interstices on apical slope, elsewhere with irregular punctures. *Abdomen* flattened along middle, each side of intercoxal process with an acute ridge terminating as a subconical tubercle, fifth segment very short in middle, where it is encroached upon by pygidium, fourth as long as second and third combined. Basal joint of four front *tarsi* distinctly inflated. Length, 4½ mm.

♀.(86) Differs in having the abdomen strongly and evenly convex, without ridges on basal segment, the fourth no longer than third, hind tibiae somewhat shorter, and in the tarsi.

Hab.—Queensland: Endeavour River (Macleay Museum), Cairns (E. Allen). Type, I. 3492.

The ridges on the basal segment of abdomen are curved, with the convex side so placed that if the two were continued they would at length form a circle or ellipse; in this they differ from the following species, where each ridge follows the line of the coxa.

GELOPTERA COMPOSITA, n. sp.

♂. Coppery-bronze, under-surface diluted with red; appendages flavous, knees and tips of four (or more) of apical joints of antennae infuscated.

Head with some small smooth spaces, and with dense punctures, becoming smaller and denser at base and on clypeus; with a vague depression in middle. *Prothorax* and *elytra* much as in *tuberculiventris.* Basal segment of *abdomen* depressed in middle, a curved ridge margining each hind coxa. Four front *tarsi* with basal joint inflated. Length (♂, ♀), 4-4¾ mm.

♀. Differs in having abdomen more evenly convex, hind tibiae shorter, and basal joint of four front tarsi smaller.

Hab.—New South Wales: Sydney (Macleay Museum and A. J. Coates), Galston (D. Dumbrell and A. M. Lea). Type, I. 3493.

In general appearance close to *tuberculiventris*, but abdomen and hind tibiae very different.

GELOPTERA SCITULA, n. sp.

♀. Greenish-bronze, elevated parts with a vague coppery gloss; appendages testaceous or flavous, some parts darker.

Head with numerous punctures of moderate size, becoming smaller and denser on clypeus and just behind same. *Prothorax* rather convex, sides gently undulated and scarcely dentate about middle, sides with very dense punctures of moderate size, becoming sparser about middle, and leaving two or three small, almost impunctate spaces. *Elytra* with regular striae and interstices only on apical slope, elsewhere the punctures are mostly subgeminate in arrangement, but becoming denser and irregular about basal third. Length, 4½-5 mm.

---

(86) In the Macleay Museum.

Hab.—Queensland: Gayndah (A. M. Lea). Type, I. 3494.

The hind knees are deeply infuscated, the others are not at all or scarcely darker than the adjacent parts; the tips of the five apical joints of antennae are also infuscated.

This species was not included in the table as only females are known of it; it is, however, sufficiently distinct, and differs from the five preceding ones by the considerably denser and smaller prothoracic punctures, somewhat different margins, and different elytral punctures. One specimen (from Brisbane, T. McGregor) is of a bright bluish-green, but otherwise agrees with the ones from Gayndah; it at first appears to belong to *intercoxalis*, but the punctures at sides of prothorax are much denser and not half the size of those of that species.

GELOPTERA ELUTA, n. sp.

Pl. viii., fig. 122.

♂. Flavo-castaneous, with a vague metallic gloss; appendages flavous, but knees and tips of three apical joints of antennae infuscated.

Head with rather small and not dense but well-defined punctures, becoming smaller and denser on clypeus; a shallow depression between eyes. *Prothorax* with sides somewhat undulated about middle; punctures neither very large nor dense about middle, but becoming larger and crowded on sides. *Elytra* with dense punctures of moderate size, more crowded behind shoulders than elsewhere, and transversely confluent there, in places in subgeminate rows, and on apical slope confined to regular deep striae. Flanks of *prosternum* shining, and with a few scattered punctures. *Abdomen* with some long hairs along each side of middle, fourth segment about as long as third and fourth combined, fifth shallowly depressed in middle. *Femora* stout, edentate; hind tibiae rather long, gently curved in middle, lightly dilated to apex, which is acutely armed on the lower-surface, and scarcely wider than the apex of the middle pair; basal joint of four front tarsi distinctly inflated. Length, 4½-5¼ mm.

♀. Differs in having the abdomen more convex, fourth segment much shorter, hind tibiae straighter, unarmed at apex, and in the tarsi.

Hab.—Queensland: Port Denison. Type, in Macleay Museum; co-type, I. 3641, in South Australian Museum.

Although tabled with *composita*, not very close to that species in general appearance, from which also it differs in the elytra strongly striated posteriorly, and hind tibiae of male wider and otherwise different at apex. In build it is close to *intercoxalis*, but the abdomen is very different. The female differs from the female (the only sex known) of *scitula* in having the elytra longer, less conspicuously wider than the prothorax, with larger punctures, more of which are transversely confluent, and striation even deeper on apical slope. On one male there is a fairly distinct median line on the head, but from another male and from a female it is entirely absent.

GELOPTERA BASIVENTRIS, n. sp.

Pl. vii., fig. 94.

♂. Flavo-castaneous, appendages flavous.

Head with rather dense and well-defined but not very large punctures, becoming irregular between eyes, and minute on front of clypeus. *Prothorax* with sides feebly dentate or undulated about middle, surface somewhat uneven; with dense and fairly large punctures, becoming crowded on sides. *Elytra* much as those of preceding species, except that the punctures are somewhat larger. Flanks of *prosternum* with distinct and rather numerous punctures. *Abdomen* with a conspicuous, double, oblique ridge on each side of intercoxal process, the two connected by a single ridge, fourth segment as long as second and third combined, fifth with a wide and deep median fovea, open posteriorly. *Femora* unarmed: hind tibiae rather thin and gently curved, not very wide at apex. Length, 4¾-5 mm.

♀. Differs as in preceding species.

Hab.—Queensland: Endeavour River. Type, in Macleay Museum; co-type, I. 3642, in South Australian Museum.

In general appearance strikingly close to the preceding species, but readily distinguished by the abdomen of the male, each side of the intercoxal process of which has a double ridge. On *intercoxalis* there is a strong ridge on each side, but each is single, and from the side appears to end in a conspicuous triangle; that species also has not the conspicuous apical fovea of the present species.

On the type there is scarcely any metallic gloss, but on three females the upper-surface has a distinct bluish gloss, becoming fainter on the under-surface, but on one female the pronotum is conspicuously metallic; the knees are lightly infuscated; on the male the tip of the antennae only is infuscated, on the females the tips of the three apical joints are. On the male the median line of the head is feebly impressed, but from the females it is entirely absent. The front tarsi of the male are missing, but the basal joint of the middle pair is distinctly inflated.

GELOPTERA SEMISTRIATA, n. sp.

♂. Flavous.

Head with not very dense punctures of moderate size, becoming smaller and denser on front of clypeus; a depression between eyes. *Prothorax* with sides somewhat undulated about middle, but scarcely dentate: surface uneven and with irregularly distributed punctures of moderate size, becoming larger and crowded on sides. *Elytra* with regular deep striae from before middle to apex, each stria with distinct punctures, elsewhere with more or less geminate rows of punctures. Flanks of *prosternum* with a few scattered punctures. *Abdomen* with fourth segment as long as second and third combined, fifth narrowly impressed across middle. *Femora* stout, unarmed; hind tibiae with apical fourth distinctly inflated and conspicuously wider than that of middle pair; basal joint of four front tarsi elongated, but not conspicuously inflated. Length, 3 mm.

Hab.—Queensland: Cairns. Type (unique) in Macleay Museum.

The elytral striation is conspicuously continued to a greater distance from the apex than on most species of the genus, but is not continued to the base, although irregular rows of punctures are almost so traceable. Except for the black eyes, no part is distinctly darker than another, but the apical half of the antennae is slightly darker than the basal: metallic gloss is entirely absent from the type.

GELOPTERA RHAEBOCNEMA, n. sp.

Pl. viii., figs. 123 and 124.

♂. Bronzy with a greenish gloss, part of abdomen paler: labrum and appendages flavous, but knees and five apical joints of antennae more or less distinctly infuscated.

Head with fairly dense but not very large punctures, becoming confluent in places and smaller on front of clypeus than elsewhere, a vague depression between eyes. *Prothorax* with almost evenly rounded sides: punctures dense and moderately large, not much larger on sides than elsewhere. *Elytra* rather elongate: with subgeminate rows of moderately large punctures, larger across basal fourth than elsewhere and mostly confined to striae on apical slope. *Abdomen* with fourth segment as long as second and third combined, its apical third transversely irregularly impressed across middle, fifth narrowly impressed across middle, and in middle deepened to a fovea. *Femora* stout, edentate; hind tibiae rather long, distinctly curved in middle, apex wide and irregular: basal joint of four front tarsi rather long, of the front ones somewhat inflated. Length, 5¼ mm.

Hab.—North-western Australia. Type (unique) in Macleay Museum.

Of the general appearance of *tuberculiventris* and *uncinata*, but abdomen and apex of hind tibiae very different. From some directions the elytra appear to be uniformly bronzy, but from others the depressed parts appear to be dark metallic-green, and the elevated parts (the feebly-elevated interstices between the subgeminate rows) brassy.

GELOPTERA BIDENTIMEDIA, n. sp.

Pl. vii., fig. 75.

♂. Of a greenish-bronze, elytra and under-surface somewhat paler; labrum and appendages flavous, but knees and five apical joints of antennae infuscated.

Head with dense, and not very large, but sharply-defined punctures, larger between eyes and smaller in front of clypeus than elsewhere. *Prothorax* with two conspicuous teeth on each side about middle; punctures slighter larger but otherwise as on preceding species. *Elytra* with somewhat denser and larger punctures than on preceding species, but otherwise much the same. Flanks of *prosternum* with punctures as on adjacent portion of pronotum. Fourth segment of *abdomen* gently convex, almost as long as second and third combined, fifth transversely foveate in middle of apex. *Femora* stout, edentate; hind tibiae rather elongate, gently dilated to apex, which is scarcely wider than that of middle pair; basal joint of four front tarsi somewhat inflated.

Hab.—Queensland: Endeavour River. Type (unique) in Macleay Museum.

In general appearance like the preceding species and *composita*, but sides of prothorax conspicuously bidentate in middle.

GELOPTERA POROSA, n. sp.

♂. Of a livid-brown with a bronzy-green gloss; appendages somewhat paler, knees (frequently only the hind ones) and tip of antennae infuscated.

Head with dense punctures of moderate size, becoming smaller and more crowded on clypeus; eyes smaller but more prominent than usual and rather conspicuously notched. *Prothorax* evenly and rather strongly convex, each side with an acute median tooth; with dense, rather large and deep punctures, rather more crowded on sides than on disc. *Elytra* with dense punctures, somewhat larger than on prothorax. *Abdomen* widely flattened but somewhat uneven along middle. Basal joint of four front *tarsi* strongly inflated. Length, 4-6 mm.

♀. Differs in being somewhat stcuter, abdomen evenly convex, and basal joint of four front tarsi smaller.

Hab.—New South Wales: Clarence River (A. and F. R. Zietz), Sydney (Macleay Museum, H. H. D. Griffith, E. W. Ferguson, and British Museum, from C. Darwin), Camden (Macleay Museum), Gosford (H. J. Carter), Wollongong, Galston (A. M. Lea). Type, I. 3040.

In general appearance strikingly close to the following species, but abdomen of male utterly different. The sizes of the punctures vary considerably between different individuals, on some of them the basal ones on the head are more or less obliquely confluent; on the basal half of elytra they are almost honeycomb-like in arrangement, but posteriorly they are in almost regular rows, with regular or feebly undulated interstices.

GELOPTERA MIRACULA, n. sp.

♂. Of a dull-red, with a greenish or bluish gloss; appendages paler, tips of palpi and of antennae, knees (frequently only the hind ones), and sometimes parts of tarsi infuscated.

Head with crowded punctures, becoming sparser towards base, on clypeus smaller and sparser about base, and much smaller and sparser in front. *Prothorax* moderately convex, each side with a distinct but obtuse submedian tooth, with crowded,. deep, and fairly-large punctures, more irregular about middle than on sides. *Elytra* rather short and wide, with crowded punctures, distinctly larger than on prothorax, becoming lineate in arrangement with undulated interstices posteriorly. *Abdomen* widely concave along middle, intercoxal process with a strongly elevated tubercle on each side, each tubercle partly overhanging the coxa and with a conspicuous fascicle, third and fourth segments each with a fascicle on each side of excavation, fifth largely excavated in middle and each side of excavation with a round fovea. Basal joint of four front *tarsi* inflated. Length, 5-6 mm.

♀. Differs in having the abdomen strongly convex and simple, and basal joint of four front tarsi somewhat smaller.

Hab.—Queensland: Cairns district (E. Allen, J. A. Anderson, H. Hacker, and A. M. Lea), Rockhampton (Macleay Museum). Type, I. 3495.

Very distinct from all others of the subfamily by the abdomen of the male; this at first appears to be composed of seven segments, but this is due to the pygidium (which is itself transversely depressed so as to appear double) greatly encroaching on the under-surface. The prothorax and sides of elytra frequently appear to be of a rather vivid-green. On many specimens the front of the clypeus appears to be almost impunctate.

GELOPTERA PUNCTATISSIMA, n. sp.

Pl. vii., fig. 76.

♀. Castaneous; margins of prothorax and of elytra metallic-blue, labrum and appendages flavous, but knees lightly, and apical portion of antennae deeply infuscated.

Head with crowded and fairly large punctures, suddenly becoming much smaller on clypeus. *Prothorax* with front and hind angles more distinctly armed than usual, each side with two conspicuous teeth about middle; with crowded punctures of moderate size, but leaving a few subgranulate spaces. *Scutellum* polished and minutely punctate. *Elytra* with crowded punctures, about base as large as those of prothorax, but smaller posteriorly, mostly in irregular double rows, the interstices between same irregularly elevated. Flanks of *prosternum* with punctures as on adjacent portion of pronotum. *Femora* unarmed. Length, 6-6¼ mm.

Hab.—Queensland: Cairns. Type, in Macleay Museum; co-type, I. 3639, in South Australian Museum.

The sculpture of the elytra is somewhat similar to that of *Mittus rugipennis*, but that of the prothorax is very different. In the table it was not referred to C as the punctures on the apical slope of the elytra, although crowded, are not transversely confluent, being deeply separately impressed; and it has been associated with *oo* (although I do not know its male), as the abdomen of the male of *miracula* is so remarkable that the two species are not likely to be confused. Parts of the under-surface have a vague bluish gloss, the abdomen is paler than the upper-surface although darker than the legs, there is some fine pubescence on the apical slope of the elytra. The elytral striae are distinct, but are not sharply defined even on the apical slope; seen directly from behind, the elytra appear to have irregular striae with irregular interstices, the latter from some directions appear to be in the form of partially connected rows of granules, many of which, however, are transversely placed.

GELOPTERA STRIATIPENNIS, n. sp.

Pl. vii., figs. 77 and 78.

♂. Of a dingy livid-brown, some parts with a slight metallic gloss; hind knees and parts of under-surface infuscated.

Head with crowded and rather coarse punctures, becoming much smaller on clypeus. *Prothorax* with crowded, deep, and rather large punctures; each side with two small submedian teeth. *Elytra* with dense and large punctures, in irregular double rows from base to apical slope, thence in single rows to apex; interstices sharply defined. *Abdomen* evenly convex along middle. Basal joint of four front *tarsi* strongly inflated. Length, 4¾-5¼ mm.

♀. Differs in having somewhat smaller eyes, abdomen wider, and basal joint of four front tarsi much smaller.

Hab.—Queensland: Cairns district (A. M. Lea). Type, I. 3496.

Readily distinguished from all others of genus by the elytral sculpture; the interstices are sharply convex and quite straight on the apical slope, where each is separated by one row of punctures, but where the rows become double they somewhat decrease in height, and in places become gently undulating. The eyes are larger and the legs and antennae longer than is usual. From some directions each shoulder appears to be feebly armed. The antennae and palpi are of uniform colour throughout. On six specimens each side of the prothorax has a small median tooth, and another between same and base, but on a seventh only the median tooth is present, a deep notch separating it from the basal angle. The sexes are readily distinguished by the tarsi, but not by the abdomen.

GELOPTERA TETRASPILOTA, n. sp.

♂. Castaneous, base of femora and elytra paler, but the latter with suture darker and with four infuscated spots: apical joint of antennae blackish.

Head with crowded punctures of moderate size, becoming smaller on clypeus; median line rather well defined. *Prothorax* with sides subangulate about middle, near base distinctly notched; with crowded, deep punctures of moderate size. *Elytra* with crowded punctures in double rows, becoming smaller posteriorly, but even there in double or semi-double rows. Basal segment of *abdomen* flat in middle, second, third, and fourth subequal, fifth with a small median fovea. *Femora* stout, edentate; hind tibiae almost regularly dilated to apex and not much wider there than on middle pair; basal joint of four front tarsi somewhat inflated. Length, 5 mm.

Hab.—New South Wales: Acacia Creek (H. J. Carter). Type (unique), I. 3640.

The elytral spots, whilst distinct to the naked eye, are not sharply defined; on each elytron the first is median and transverse, touching the side but not the suture, the second is just below summit of apical slope and touches neither the side nor suture. The interstices between the double rows of punctures on the elytra are rather narrow and distinctly raised, and are so encroached upon by the punctures that from some directions they appear almost regularly undulated from base to apex; they cause the elytra to appear striated from base to apex, although true striae should perhaps be regarded as absent.

GELOPTERA MINIMA, n. sp.

Of a rather dingy-flavous or testaceous; under-surface somewhat darker than upper, appendages paler, but tip of antennae infuscated.

Head with numerous punctures of moderate size, smaller on front of clypeus than elsewhere; eyes fairly large, moderately notched. Antennae long and thin, second joint stouter than third and almost as long. *Prothorax* about twice as wide as median length, sides strongly rounded and subangulate about middle; with dense and rather coarse punctures, becoming sparser and irregular about middle. *Elytra* punctate-striate, punctures well defined but becoming smaller posteriorly, and somewhat crowded and irregular on basal third, especially near suture. Length, 2¼-2½ mm.

Hab.—Queensland: Cairns district (A. M. Lea). Type, I. 3116.

A very minute species, but I think correctly referred to Division I., although the angulation of the sides of the prothorax is very feeble, and on some specimens the sides about the middle appear to be quite evenly rounded; on examination from the under-surface, however, a vague angulation may be seen, even on these specimens. The canaliculation of the tibiae is unusually feeble. The sexual differences are but slight; the male has the basal joint of the four front tarsi larger than in the female, the abdomen less convex, and the apical segment with a small fovea.

GELOPTERA PALLIPES, n. sp.

Dark piceous-brown, in places almost black; head and parts of under-surface diluted with red, appendages flavous, tips of one to five apical joints of antennae infuscated.

Head with numerous punctures, becoming sparser towards base and smaller and denser on clypeus. *Prothorax* with sides strongly rounded and obtusely dentate at middle; with crowded and rather large punctures, denser on sides than middle. *Elytra* with punctures and striae much as on preceding species, except that the punctures are rather larger about the base, and slightly smaller posteriorly. Length, 2½-3 mm.

Hab.—Queensland: Cairns district (A. M. Lea). Type, I. 3497.

Close to the preceding species and with similar sexual differences, but larger and darker, etc. There is usually a vague metallic-green gloss on the prothorax; the tips of the elytra are usually paler than before same, the base also, and the scutellum, are usually paler than the adjacent parts. On some specimens the punctures on the head are sparser than on others; although usually rather numerous they are never crowded together.

GELOPTERA MICROCALLA, n. sp.

♂. Purple; abdomen brownish, labrum and appendages flavous, but tip of antennae infuscated.

Head with dense punctures of moderate size, larger between eyes and on base of clypeus than elsewhere, but small on lateral angles of clypeus. *Prothorax* with sides feebly undulated about middle, basal angles distinctly armed; with dense and fairly large punctures, becoming crowded on sides. *Elytra* with dense and rather large punctures on basal half, becoming somewhat larger behind shoulders, about middle subgeminate in arrangement and becoming seriate posteriorly, where, towards suture, they are confined to striae. Fourth segment of *abdomen* about once and one-half the length of third, fifth very short. *Femora* rather stout, edentate; hind tibiae not very wide at apex; basal joint of four front tarsi somewhat inflated. Length, 3 mm.

Hab.—Queensland: Port Denison. Type in Macleay Museum.

On the type there is neither a distinct median line on the head nor a distinct impression between the eyes. A specimen originally mounted on the same card with the male is possibly the female of the species; it differs in being somewhat wider, head with a small inter-ocular fovea and with a narrow median line traceable from same to base, abdomen with fourth segment longer and fifth shorter; the head, prothorax, and sterna brassy-green, in places becoming a vivid-green, and the elytra bronzy, with green margins; the abdomen and the appendages (but only the basal joint of each antenna and the hind legs are present) are coloured as those of the type.

GELOPTERA IGNEONITENS, Baly.

Pl. vii., fig. 79.

♀. Head purple, with three oblique metallic-green lines starting from between eyes; prothorax purple, with all the margins narrowly green; scutellum green and purple; elytra bronzy-black, becoming purple towards sides, but the margins green; under-surface and legs bronzy or bronzy-green, in places purplish: antennae black, the three basal joints in places diluted with red.

Head with dense but not very large punctures, many of which are confluent, especially near the eyes: these subreniform and widely notched. *Prothorax* almost thrice as wide as the median length, each side (including the angles) with five small teeth; with dense and fairly large punctures, becoming very crowded on sides, the elevated parts with much smaller ones. *Elytra* wide; with dense punctures more or less transversely confluent almost throughout, the elevated parts with small punctures. Length, 10 mm.

Hab.—North-western Australia: Shark Bay (C. French).

An unusually large, robust species, with transverse rugosities of elytra unusually long, and giving most of the surface a somewhat vermiculate appearance, even on the apical slope, where only a few of the subsutural striae are traceable. The under-surface is rather densely pubescent, and the head is lightly so. On close examination the prothoracic punctures are seen to be of three kinds: dense and fairly large ones having a somewhat jagged appearance on the sides, much smaller but sharply-defined ones, and dense and minute ones that could easily be overlooked. Of the lateral teeth of the prothorax those at the angles are each provided with a distinct seta, of the others the subbasal one is much less defined than those in front of it.

I had the description of this species written out as new, but fortunately Mr. Arrow sent a specimen for examination that was compared with the type, although from the description I would never have considered it *igneonitens*; the specimen he sent is considerably smaller than the one in the South Australian Museum, and the colours vary somewhat, but otherwise they agree well.

GELOPTERA HARDCASTLEI, n. sp.

Pl. vii., fig. 80.

♂. Black; palpi, three basal joints of antennae and parts of others, and the claws testaceous.

Head with rather small, crowded punctures; with three feeble impunctate spaces. Eyes unusually large. *Prothorax* less than twice as wide as the median length, sides feebly undulated about middle, basal and apical angles armed; with fairly dense punctures of moderate size, becoming larger and crowded on sides, interspaces with small punctures. *Elytra* suboblong; with dense and somewhat irregular punctures, mostly larger than on prothorax, becoming crowded, smaller, and frequently transversely confluent on apical slope, but many transversely confluent elsewhere as well. Basal segment of *abdomen* depressed in middle, fifth irregularly transversely depressed, and encroached upon by pygidium. Basal joint of each *tarsus* distinctly inflated. Length, 7½ mm.

Hab.—Queensland: Cunnamulla (H. Hardcastle). Type (unique), I. 3499.

In general appearance somewhat like the following species, but narrower, eyes larger, sides of prothorax less conspicuously irregular, etc.; like that species also, it might have been referred to *Colaspoides*. The tibiae from some directions appear to be very obscurely diluted with red. There is some very short pubescence between the eyes. There are a few subsutural striae on the apical slope, but elsewhere neither striae nor interstices are well defined; but there are feeble remnants of two or three interstices on each elytron almost throughout.

Division 2.

GELOPTERA LATERICOLLIS, n. sp.

Pl. vii., fig. 81.

♀. Black; labrum, palpi, four to six basal joints of antennae, and parts of some others testaceous, parts of under-surface and of legs obscurely diluted with red.

Head with rather small but crowded punctures, many of which are obliquely confluent; with a small median fovea and two small impunctate spaces; labrum almost as long as wide. Eyes distinctly notched and subreniform. *Prothorax* about twice as wide as median length, each side with a distinct notch on each side of middle; with moderately dense and fairly large, deep punctures, interspersed with numerous small ones. *Elytra* suboblong; sides with dense, coarse, and frequently transversely confluent punctures, becoming smaller about base and much smaller about middle; striae and interstices distinct on apical slope only. *Legs* stout; front femora lightly but distinctly dentate. Length, 10-10½ mm.

Hab.—Northern Queensland (Blackburn's collection and H. J. Carter), Endeavour River (Macleay Museum). Type, I. 3043.

This species might have been referred to *Colaspoides*, and to the vicinity of such species as *similis* and *parvidens*, but as the undulation of the sides of prothorax is very pronounced it was referred to the present genus, several species of which have dentate femora; in general appearance it is close to the species identified (with doubt) by the late Rev. T. Blackburn as *G. duboulayi*. The upper-surface has in places a vague brassy gloss, and the under-surface a greenish one. The head is clothed with short pubescence. The labrum is of quite unusual length.

GELOPTERA TIBIALIS, n. sp.

Pl. viii., figs. 125 and 126.

♂. Bronzy; appendages testaceous, in places infuscated.

Head with crowded punctures of moderate size, becoming smaller and denser on clypeus. Eyes rather widely notched. *Prothorax* somewhat uneven, each side with a conspicuous median tooth; with dense and fairly coarse punctures, almost or quite absent from three feebly-elevated submedian spaces. *Elytra* uneven; with dense and coarse punctures; striae and interstices well defined on apical slope. Basal segment of *abdomen* with a conspicuous conical tubercle in middle of apex, fourth depressed in middle of apex, and in middle before same with a feeble tubercle, sides encroaching on fifth, fifth with a wide median fovea. Front *femora* lightly but acutely dentate; hind tibiae with a wide, thin, and somewhat curved apical flange, wider than the following joint and about the same length; basal joint of four front tarsi inflated. Length, 4½-5 mm.

♀. Differs in having the abdomen evenly convex and simple, hind tibiae without the apical flange, and in the basal joint of four front tarsi being smaller.

Hab.—Northern Queensland (Blackburn's collection and H. J. Carter): Coen River (H. Hacker and W. D. Dodd), Cairns (E. Allen and A. M. Lea). Type, I. 3500.

Readily distinguishable from all other species by the abdomen and hind tibiae of the male; the former, owing to the pygidium, appears to be composed of six segments. The under-surface has usually a greenish gloss, but in places is obscurely diluted with red. From five to eight of the apical joints of antennae, the hind knees (or all of them), middle of tibiae, and three basal joints of tarsi, are more or less deeply infuscated. On many specimens there are some small impunctate spaces on the head, but they are frequently absent; on the elytra, as well as on the prothorax, several small spaces, owing to absence of coarse punctures, appear like feebly-elevated tubercles.

GELOPTERA CONCINNA, n. sp.

♂. Golden-red: under-surface bronzy-green, becoming brassy in places, labrum and appendages flavous.

Head with crowded punctures of moderate size, somewhat smaller on front of clypeus than elsewhere, and in places longitudinally confluent. *Prothorax* rather strongly convex, sides feebly undulated; punctures as dense as on head, but somewhat larger. *Elytra* with punctures of almost even size throughout, but somewhat larger than on prothorax, and posteriorly becoming confined to striae. Front *femora* lightly but acutely dentate. Length, 3½ mm.

Hab.—Queensland: Mount Tambourine (A. M. Lea). Type (unique), I. 3501.

In some lights the elytra appear to have narrow green margins. Although the elytral punctures (except on parts of the apical slope) are not in regular striae they appear to be in almost regular rows, but about the basal third a few are transversely confluent. There are but seven joints of one antenna (and less of the other) present on the type, and these are entirely pale, but the tips of the palpi are infuscated.

GELOPTERA ANGULICOLLIS, n. sp.

Pl. vii., fig. 82.

♀. Bronzy; under-surface reddish-castaneous, appendages paler, but tip of antennae infuscated.

Head with dense punctures of moderate size, larger on base of clypeus and smaller on front of same than elsewhere; an irregular depression between eyes, and a narrowly impressed median line. *Prothorax* with sides distinctly armed at base and apex, sides obliquely dilated to middle, which is conspicuously angulate but not dentate, with rather large punctures, crowded on sides, but somewhat sparser on disc. *Elytra* suboblong, not very long; sutural half with subgeminate punctures, becoming confined to striae on apical slope, lateral portions with crowded and irregular punctures, many of which are irregularly confluent. Flanks of *prosternum* with rather dense punctures. *Abdomen* strongly convex; fifth segment with a distinct carina along middle. *Femora* stout, front pair lightly dentate; hind tibiae rather elongate, not very wide at apex. Length, 5-5½ mm.

Hab.—New South Wales: Mount Wilson (H. J. Carter). Type, I. 3643.

The tooth of the front femora, although in itself very small and from some directions invisible, is rendered fairly conspicuous by being the summit of an angular inflation. The tarsi and the strongly convex abdomen are indicative that the three specimens before me are females, but the conspicuously carinated abdomen should be a useful aid to identification. In general appearance it is like some species of *Agetinus*. On one specimen the upper-surface has a vague bluish gloss, this being especially the case with the punctures. On each elytron there are several feebly-elevated interstices, of which the most conspicuous one forms the dividing line between the subgeminate and the crowded punctures, but it is traceable neither to base nor apex.

GELOPTERA ILLIDGEI, n. sp.

♂. Bright metallic-green, with a golden gloss, parts of under-surface brassy; labrum and appendages flavous, but tips of antennae and of palpi infuscated.

Head with very dense (and in places confluent) punctures of rather small size, a small impunctate elevation near each antenna. *Prothorax* scarcely twice as wide as the median length, each side with a small median tooth; with dense, deep, and fairly-large punctures, more crowded on sides than on disc, with much smaller punctures scattered about. *Elytra* with dense and fairly large punctures, transversely confluent with conspicuous transverse ridges over most of the surface; striae present only on parts of apical slope. Basal segment of *abdomen* depressed in middle, fifth transversely impressed and encroached upon by pygidium. Front *femora* lightly dentate, the hind ones widely but obtusely dentate; four front tarsi with basal joint greatly inflated. Length, 5½-6 mm.

Hab.—Queensland: Brisbane (R. Illidge). Type, I. 3502.

This and the following species are certainly closely congeneric with *Edusa singularis* (synonymous with *Colaspis jugularis*), but I refer them all to *Geloptera*, on account of the conspicuously dentate sides of prothorax; the two have some short and sparse golden pubescence about apex of elytra; it could easily be overlooked, but from certain directions is fairly distinct. The hind femora appear to be largely angulate, with the summit of the angular portion truncated. A second specimen differs from the type in being of a greenish-bronze colour.

There are two specimens of this species in the British Museum from Moreton Bay; one is of a bluish-green, the other is coloured as the type.

GELOPTERA LATERIDENS, n. sp.

♂. Bright metallic-green; labrum and appendages flavous, under-surface somewhat darker.

Head with rather small, crowded punctures; becoming smaller and denser on clypeus, and smaller and sparser towards base; a smooth impunctate space near each antenna. *Prothorax* not twice as wide as median length, each side conspicuously bidentate about middle; with dense and rather large punctures on sides, becoming sparser about middle. Elytra with dense and rather coarse punctures, in places transversely confluent; striation distinct only on apical slope near suture. *Abdomen* gently convex, fifth segment depressed in middle and encroached upon by pygidium. Front *femora* strongly and acutely dentate; basal joint of four front tarsi somewhat inflated. Length, 5 mm.

Hab.—Queensland: Cairns (E. Allen). Type (unique), I. 3503.

The under-surface of the type, although not at all metallic, except on parts of the prosternum, has the peculiarly livid appearance that is sometimes indicative of immaturity, and the three terminal joints of antennae are missing; but the species is so abundantly distinct by other characters that I have not hesitated to describe it. It is readily distinguished from the preceding species by the sides of prothorax, and by the hind femora; the tibiae are also much less conspicuously canaliculate. Each basal and apical angle of the prothorax is provided with an elongate seta. In structure it is close to *jugularis*, but the type is of a much more vivid green than any specimen I have seen of that species, the male of which has also a distinct round fovea on the fifth segment of abdomen and the basal joint of the front tarsi decidedly shorter and wider; its prothorax is also more uneven and with different punctures.

TERILLUS.

This genus appears to have been regarded as one to which almost any doubtful pubescent species could be referred.

TERILLUS ROTUNDICOLLIS, Chp.

There is nothing in the generic description of this species, or of the short specific one, inconsistent with its being *Geloptera nodosa*. The elytra were described as having three interrupted costae, but on *nodosa* each has really four or five, the outer or the two outer ones being smaller, more posterior, and even more broken up into granules than the others. The antennae were described as flavous-brown, and are figured as considerably paler than on *nodosa;* the figure also represents the costae as starting almost in a line, whereas on *nodosa* the one near the suture is considerably in advance of the others; the figure also represents the elytra as being arcuate towards and obtusely bimucronate at apex, but these may be artistic exaggerations. Whilst not stating definitely, therefore, that the names are synonymous, I consider it probable that if the type, or an authenticated specimen of either, could be compared with the other type, they would be found to be identical. In any case I believe them to be absolutely congeneric, and, as *nodosa* appears to have been correctly referred to *Geloptera*, that the genus *Terillus* cannot be maintained.(87)

---

(87) Of the other species referred to *Terillus*, *vittatus*, Baly, is synonymous with *Geloptera nodosa; squamosus*, Baly (certainly), *perplexus*, Baly, and *duboulayi*, Baly (probably), belong to *Megasceloides; foveolatus*, Baly, is a *Tomyris; porosus*, Jac., *micans*, Blackb., *politus*, Blackb., and *carinatus*, Blackb., belong to *Alittus;* and *suturalis*, Blackb., to *Edusa.*

AGETINUS.

Of this genus Lefevre described the sides of the prothorax as angularly undulated, and the tibiae as simple. But even on many specimens of the typical species the sides of the prothorax are evenly rounded in the middle; evidently Blackburn regarded the sides of the prothorax as of minor importance, as in *aequalis* they are not at all angulate in the middle. In *subcostatus* the tibiae are strongly ridged, but the four hind ones are not notched near the outer apex (as in *Rhyparida*, *Tomyris*, etc.); but on several species (including *aequalis*) here referred to the genus, the front tibiae are conspicuously notched, so that they cannot be regarded as simple. Of the other species referred by Lefevre to the genus I am regarding *Geloptera geniculata* as a true *Geloptera* (although it is very close in many respects to *subcostatus*), and as but doubtfully synonymous with *corinthius; Colaspis jugularis* is also regarded as belonging to *Geloptera; Colaspis australis* may be almost anything from its description. In the majority of species the elytra have several oblique impunctate spaces, and on a few of them these are moderately elevated, giving a subcostate appearance to those organs. The front margins of the prosternal episterna are oblique and usually quite straight, the flanks have fairly large punctures, usually sharply defined, but occasionally partly obscured by shagreening. All have edentate femora. On all of them the second and third joints of the antennae are subequal, or the second is slightly (sometimes distinctly) the longer, the five apical joints are stouter than the five preceding ones, and the eleventh is usually about once and one-fourth the length of tenth. The colour of the legs is sometimes variable. *Aequalis*, *obliquus*, and *admirabilis* are very different in general appearance to *subcostatus*, and should it be eventually decided to regard the genus as forming a section only of *Geloptera*, it may be desirable to generically separate them. Following is a table of the species:—

A. Elytra strongly convex along middle.
  a. Greatest elevation of elytra distinctly near base ... ... *obliquus*
  aa. Greatest elevation not distinctly near base.
    b. Some punctures on apical slope of elytra transversely confluent ... ... *admirabilis*
    bb. No punctures transversely confluent there *aequalis*
AA. Elytra gently convex.
  B. Medio-apical punctures of prothorax longitudinally confluent ... ... *confluens*
  BB. Punctures at apex not so confluent.
    C. Prothorax with a conspicuous impunctate median line on basal half ... ... *cicatricosus*

CC. Prothorax without a distinct median line.
* Front femora lightly dentate ... ... *croesus*
** Front femora edentate.
D. Above average size and with comparatively large punctures.
c. Subcostate appearance of elytra conspicuous ... ... *subcostatus*
cc. Subcostate appearance very feeble or wanting ... ... *hackeri*
DD. Much smaller and with much smaller punctures.
E. Subcostate appearance of elytra wanting ... ... *abjectus*
EE. Subcostate appearance more or less conspicuous.
F. Hind tibiae not suddenly dilated at apex.
d. Middle tibiae suddenly dilated at apex ... ... *compositus*
dd. Middle tibiae not so dilated *cacozelus*
FF. Hind tibiae suddenly dilated at apex.
G. Front tibiae triangularly notched at apex ... ... *nitidivirgatus*
GG. Front tibiae not triangularly notched ... ... *juvencus*

NOTES ON TABLE.

A. Their lateral slopes are curious; see notes under *aequalis*.

F. Their hind tibiae are wider at apex than elsewhere, but the increase in width is almost regular from about the apical third. On FF. the tibiae are suddenly dilated there, the outer apex appearing almost equilaterally triangular.

d. See pl. viii., figs. 129 and 130.

AGETINUS SUBCOSTATUS, Chp.

Noda tasmanica, Jac.

Pl. vii., fig. 85.

This species is the type of *Agetinus* (*Agetus*, *n. pr.* of Chapuis); the sides of the prothorax were described by Chapuis as "dilatés arrondis au milieu, ondulés-anguleux"; by Lefevre they were stated to be "in medio ampliato-rotundatus, ibique angulato-undulatus." The genus belongs to the *Colaspitae*, tabulated by Lefevre as having prothorax "with sides more or less dentate or undulated," as against "sides entire" of *Iphеimeitae*.

There are in the Museum several specimens identified by Mr. Blackburn as *subcostatus*, and one received by him from Dr. Chapuis as a co-type. This latter specimen agrees well with the figure, and its identity does not seem open to question. The prothorax on Chapuis' co-type, and on several other specimens in the Museum, has each side obtusely subangulate in two places about the middle, but on many specimens they are quite evenly rounded. The colour, whilst usually bronzy or brassy, also varies considerably, many specimens being blue, or deep bluish-green with purple reflections, or entirely purple, except that the legs and antennae are more or less reddish (occasionally, however, the femora are more or less dark, sometimes with a metallic gloss). The species is common in many parts of South Australia, Victoria, and Tasmania, and specimens from the latter State were named *Noda tasmanica* by Jacoby; there are also two specimens in the Macleay Museum labelled as from Port Denison, in Queensland.

AGETINUS AEQUALIS, Blackb.

Pl. viii., figs. 127 and 128.

The type, and a co-type, of this species are in the Museum. The legs are stout; the tibiae longitudinally canaliculate and dilated to the apex, each of the front ones has a conspicuous subtriangular notch near the apex due to a portion of the apex being scooped out for the reception of the base of the tarsus, so that when viewed from below the apex appears to be terminated by a thin flange. The notch is invisible from directly above, but from behind it is very conspicuous; it is bounded posteriorly by a triangular tooth. In general appearance the species is very unlike the typical one *(subaequalis)*, but as the front tibiae are much as on *nitidivirgatus*, it may be as well to leave it in *Agetinus*. In addition to the specimens mentioned there are numerous others identified as *aequalis* by the late Rev. T. Blackburn; but these differ in being smaller and green, or brassy-green, or blue, or purple. They all have the elytra strongly convex along the middle, and from the suture to the margin each has a curious sloping (almost obliquely flattened) appearance, so that a section across the middle would be almost triangular. The elytral costae are so extremely feeble that it would be better to regard them as absent. The male differs from the female in having the abdomen slightly less convex, more depressed at the sides and the apical segment with a small fovea; the front tarsi (more especially the basal joint) are also wider.

There are also in the Museum four males from Darwin (G. F. Hill's No. 65) that perhaps represent a variety. They are brassy like the type, but considerably smaller, and the abdominal fovea is decidedly larger and quite circular. The front tibiae are more acutely produced outwards at the apex, and the notch is less distinct from behind, although quite distinct from certain directions.

AGETINUS OBLIQUUS, n. sp.

Pl. vii., fig. 86.

Golden-green, under-surface brassy; femora, tibiae, palpi, and basal half of antennae reddish, apical half of antennae and tarsi more or less infuscated.

Head finely shagreened, somewhat irregular between eyes; with dense punctures of moderate size. *Prothorax* with sides scarcely rounded, but rapidly decreasing in width from base to apex; punctures much as on head. *Elytra* strongly convex, greatest height near scutellum, sides obliquely flattened; with dense punctures of fairly large size, becoming smaller towards suture, and a few confluent behind shoulders, interspaces with minute ones; a few well-defined striae on apical slope. *Abdomen* with a round apical fovea. *Legs* stout; tibiae strongly ridged, triangularly dilated at apex, the front pair conspicuously notched at the outer apex; tarsi wide. Length, 4¼-4½ mm.

Hab.—Queensland: Coen River (W. D. Dodd), Cooktown (H. J. Carter). Type, I. 3296.

With the curious front tibiae and sloping sides of elytra of *aequalis*, but differs from that species, and from the following one, in the suture being very decidedly more elevated towards the base, so that when viewed from the sides their greatest elevation is quite distinctly seen to be near the base; on *aequalis* and on the following species the sutural slope is much more gradual, so that from various points of view almost any part of the basal third may appear to be the highest part. The labrum is of a dingy-red. The elytral punctures are decidedly larger than the prothoracic ones; except on the apical slope there are no distinctly elevated spaces, although feeble remnants of impunctate lines may be traced on some specimens: although dense the punctures could scarcely be regarded as crowded, neither are they lineate in arrangement, but on some specimens the remnants of impunctate lines appear to divide them into longitudinal areas. Three specimens differ from the types in having the upper surface of a golden-red, but becoming green on sides of elytra; another is golden-purple, and two others have the upper-surface entirely purple, the under-surface also purple, but becoming green in parts; they are probably all males.

AGETINUS ADMIRABILIS, n. sp.

Of a vivid green, parts of under-surface brassy; labrum and appendages more or less reddish, but parts of antennae infuscated.

Head shagreened, somewhat irregularly impressed between eyes, with a feeble median line; with dense punctures of moderate size; clypeus semicircularly incised. *Prothorax* and *legs* as in preceding species. *Elytra* rather strongly convex, sides somewhat obliquely flattened, greatest height submedian; with dense punctures, distinctly larger than on prothorax, and many transversely confluent; a few moderate subsutural striae on apical slope, but elsewhere without defined lines. Length, 3¾-4 mm.

Hab.—North-western Australia: King Sound (W. W. Froggatt). Type, I. 3401.

With the curious front tibiae of *aequalis*, but differs from that species in the elytra between the suture and sides more evenly rounded, with punctures rather more crowded and frequently transversely confluent, many of the punctures on and at the sides of the apical slope are confluent, whereas on *aequalis* the elytra are usually without any confluent punctures, and even when a few are present these are confined to the vicinity of the shoulders. Of six specimens, all of a vivid green, under examination four have the front tarsi slightly wider than those of the others, the abdomen less convex, longitudinally depressed on each side, and the apical segment with a small round fovea. They appear to be males. Each of the others, however, has a larger fovea on the apical segment, and one of these has a short soft projection issuing from the tip of the abdomen and tipped with two minute processes, so it is evidently the tip of an ovipositor. The punctures on the clypeus are usually, but not always, smaller than on other parts of the head.

AGETINUS CONFLUENS, n. sp.

Brassy, in some places brassy-green; labrum and appendages reddish, but tips of some antennal joints infuscated.

Head with very dense and frequently confluent punctures, median line ill-defined; clypeus slightly depressed. *Prothorax* with moderately rounded sides, greatest width submedian, with an ill-defined but fairly distinct median line; with very dense and mostly longitudinally confluent punctures of moderate size. *Elytra* moderately long, gently convex; with rather large asperate punctures, crowded on basal half and becoming smaller posteriorly; apical slope with well-defined striae separated by conspicuous ridges, some of the latter traceable, but less distinctly so, almost to base. *Legs* moderately stout; tibiae strongly ridged and dilated at outer apex. Length, 3¼-3½ mm.

Hab.—Queensland: Dalby (Mrs. F. H. Hobler); New South Wales: Whitton (A. M. Lea); South Australia: Nuriootpa (J. G. O. Tepper). Type, I. 3414.

The punctures of prothorax and sculpture of elytra should render this species very distinct. From some directions the outer apex of the front tibiae appears to be almost evenly rounded, but from others it appears to terminate in an acutely triangular tooth. The abdomen is non-foveate on the four specimens under examination, but as one of these has the basal joint of the front tarsi distinctly larger than on the others, it is probably a male, and the others females (one certainly is, as its ovipositor is extended). Three specimens have the clypeus and sides of elytra greenish, but on another no green is present.

AGETINUS CICATRICOSUS, n. sp.

♂. Brassy; base of antennae and tip of tibiae of a more or less dingy-red.

Head rather strongly convex, with a distinct but rather small inter-ocular fovea; with dense punctures of moderate size, smaller about fovea than elsewhere, and becoming confluent towards sides. *Prothorax* with strongly rounded sides, with an impunctate median line very conspicuous on basal half: with dense punctures of moderate size, in places obliquely or transversely confluent, but separately impressed in middle of apex. *Elytra* rather elongate, with fairly large, crowded, asperate punctures, frequently transversely confluent, even posteriorly; suture and remnants of costae shining. Apical segment of *abdomen* flattened in middle. *Legs* stout; tibiae strongly ridged, outer apex dilated; basal joint of four front tarsi strongly dilated. Length, 3¾-4½ mm.

♀. Differs in having the abdomen more convex, legs thinner, and basal joint of four front tarsi much smaller.

Hab.—Western Australia: Vasse River (A. M. Lea). Type, I. 3563.

A narrow species, at first glance suggestive of *Geloptera nodosa* in miniature. Differs from all the costate species of the genus by the shining median line on prothorax. The elytral costae are more or less broken up, but the one near the suture is occasionally traceable throughout; there are no distinct elytral striae except a rather feeble subsutural one on the apical slope; the running together of the punctures is especially conspicuous behind the shoulders, where some of the transverse ridges are traceable almost from the suture to the side. The antennae are sometimes entirely dark, as are also the legs; on several specimens parts of the upper-surface are obscurely purplish. The elytra are very feebly pubescent posteriorly.

AGETINUS HACKERI, n. sp.

♂. Brassy; labrum and appendages more or less reddish. *Head* shallowly impressed in middle; with dense punctures of moderate size, becoming small on front of clypeus. *Prothorax* with sides strongly rounded, about the middle frequently subangulate, with dense punctures of moderate size, becoming larger and more crowded on sides, with some feebly-elevated impunctate spaces. *Elytra* short and wide, costae either absent or represented by feeble remnants only; with dense and fairly large punctures, frequently transversely confluent; apical slope with numerous small tubercles or obtuse granules, and without striae, except one on each side of suture. *Abdomen* with a small apical fovea. *Legs* stout; tibiae distinctly ridged, somewhat dilated at apex, the front ones notched at outer apex: basal joint of each tarsus dilated. Length, 5¼-6½ mm.

♀. Differs in being more robust, abdomen more convex and non-foveate, and basal joint of tarsi smaller.

Hab.—New South Wales: Blue Mountains (Blackburn's collection), Galston (D. Dumbrell), Lawson, Mittagong (A. M. Lea), National Park, Sydney (H. J. Carter and Lea); Queensland: Stradbrooke Island (H. Hacker). Type, I. 3564.

In size and general appearance close to *subcostatus*, but elytra without the conspicuous flat costae of that species; on some specimens, however, there is an appearance in places as of remnants of same. On many specimens each side of prothorax is feebly angulate about the middle, but frequently it is quite evenly rounded. The labrum is usually dark in the middle, but varies from entirely pale to entirely dark; usually the second to fifth joints of antennae are entirely pale, and the under-surface of the first and of the sixth and seventh are pale, but occasionally only parts of the three basal joints are pale; the apical joints of the palpi are dark; usually only the tarsi are black, but occasionally the legs are entirely black; on an occasional specimen many of the elytral punctures have a greenish or purplish gloss. The impunctate spaces on the prothorax are neither sharply defined nor large, and occasionally are altogether absent, they usually appear to be in three transverse series, of which the median series (composed of from four to six spaces) is generally more distinct than the others. The transverse ridges between the confluent punctures on the elytra are very conspicuous except posteriorly, where they are replaced by small irregular elevations, appearing like irregularly rounded granules or small tubercles, much more conspicuous on some specimens than on others; on one specimen the left elytron only has a large rounded tubercle.

AGETINUS ABJECTUS, n. sp.

♂. Brassy; parts of antennae and of palpi reddish.

Head rather strongly convex about base, with a shallow median impression; with rather dense punctures of medium or small size, rather smaller and sparser behind middle than in front. Second joint of antennae distinctly longer than third. *Prothorax* with strongly and evenly rounded sides; with small and fairly numerous punctures in middle, becoming denser and larger on sides. *Elytra* with fairly large punctures on basal half, becoming smaller and sublineate in arrangement posteriorly, and nowhere confluent. *Abdomen* feebly depressed in middle of apex. *Legs* stout; tibiae strongly ridged, almost evenly dilated to apex; basal joint of four front tarsi dilated. Length, 2¾-3¼ mm.

♀. Differs in having abdomen more strongly convex, legs thinner, and basal joint of four front tarsi smaller.

Hab.—New South Wales (Blackburn's collection): Galston (D. Dumbrell), Sydney (A. M. Lea, British Museum, from C. Darwin); Tasmania (Blackburn): Hobart, Huon River (Lea).

A minute species, with the oblique lines on elytra scarcely or not at all traceable; about the middle the elytral punctures become subgeminate in arrangement, and on the apical slope they are in almost regular rows; striation, however, is absent posteriorly, except close to the suture and sides. An occasional specimen has a vague greenish gloss; usually three or four basal joints of antennae (except the upper-surface of the first) and the basal joints of the palpi are obscurely reddish.

AGETINUS COMPOSITUS, n. sp.

Pl. viii., fig. 129.

Brassy; second and third joints of antennae, and under-surface of first, of a dingy-red.

Finely shagreened. *Head* rather strongly convex about base, with a small median impression; punctures fairly dense and rather small. *Prothorax* with strongly and evenly rounded sides; punctures much as on head. *Elytra* with moderate punctures about base, becoming smaller posteriorly, but at extreme apex somewhat increasing in size, from near base in more or less conspicuous semi-double rows. *Tibiae* distinctly ridged, apex distinctly but not suddenly dilated; basal joint of four front tarsi wide. Length, 4¼ mm.

Hab.—New South Wales: Sydney (A. M. Lea). Type (unique), I. 3565.

Considerably smaller than *subcostatus*, prothorax with much smaller punctures, sides without the least irregularity about middle, and elytra with the impunctate lines not distinctly elevated above the adjacent parts. On each elytron there are six impunctate lines, the first three (including the suture) separated by semi-double rows of punctures, the others separated by two semi-double rows. The abdomen of the type is not foveate, the apical segment being but feebly depressed at the middle of the apex, but the tarsi appear to be masculine.

AGETINUS CACOZELUS, n. sp.

Pl. viii., fig. 130.

Bronzy, in places brassy; parts of appendages reddish.

Finely shagreened. *Head* with a feeble median impression; with dense but rather small punctures. *Prothorax* with strongly and evenly rounded sides; disc with numerous small punctures, becoming larger and crowded on sides. *Elytra* with crowded and fairly large subasperate punctures on basal third, transversely confluent near shoulders, and sublineate in arrangement in places. *Tibiae* distinctly ridged, somewhat dilated at apex (but not suddenly so). Length, 3¾ mm.

Hab.—Western Australia: Swan River (A. M. Lea). Type (unique), I. 3566.

Close to *juvencus*, but four hind tibiae less dilated at apex, upper-surface with denser and more distinct punctures, and shining lines on elytra much less noticeable; from the preceding species it differs in being narrower, middle tibiae less dilated at apex and elytral punctures decidedly coarser, the subcostate appearance of the elytra is less defined and the subgeminate arrangement of the punctures less pronounced and for a shorter distance; the abdomen is much as on the type of that species, but, as the basal joint of no tarsus is dilated, the type is almost certainly a female. Parts of the six basal joints of antennae and the tip of each tibia are more or less reddish.

AGETINUS NITIDIVIRGATUS, n. sp.

Pl. viii., figs. 131 and 157.

♂. Brassy or bronzy; parts of appendages more or less reddish.

Head with a small median impression; with dense punctures of moderate size. *Prothorax* with strongly and evenly rounded sides; disc with rather small and not very dense punctures, becoming denser towards and crowded on sides. *Elytra* with fairly large punctures, about base fairly dense and with smaller punctures interspersed, apex with crowded punctures, elsewhere with small ones divided into well-defined areas by shining lines. Fifth segment of *abdomen* incurved to middle of apex, feebly depressed across middle. *Legs* stout; tibiae strongly ridged, apex of each triangularly inflated, front pair notched at outer apex; basal joint of four front tarsi strongly dilated. Length, 4-4½ mm.

♀. Differs in having abdomen more strongly convex, legs thinner, and basal joint of four front tarsi much smaller.

Hab.—Western Australia: Swan River (Blackburn's collection and A. M. Lea). Type, I. 3567.

The elytra have a conspicuously striped appearance, but the smooth spaces are not elevated as on *subcostatus;* it also differs from that species in being smaller, narrower, more convex, and more ovate, punctures much smaller, and tibiae more dilated. In some respects it is close to *compositus*, but is decidedly narrower, and the tibiae are different. From one point of view the front tibiae appear much as in the figure of that of the following species, but from others the notch is very evident, but on that species from no direction does it appear deeply notched at apex. The first six joints of antennae (wholly or in part), basal joints of palpi, tibiae, and parts of femora and of tarsi are reddish. The punctures on the head are sometimes almost evenly distributed, except that behind the eyes they are usually somewhat confluent, and denser than elsewhere, but on many specimens they are sparser and smaller about the middle towards the base than elsewhere; the median impression is usually shallow, but on one specimen is fairly deep. The sides of the elytra are scarcely visibly pubescent posteriorly; each elytron has three distinct oblique lines, impunctate or almost so; adjacent to them the punctures are more or less seriate in arrangement, with smaller scattered ones between the rows; towards the sides, however, the punctures are denser; the base, sides, and apex are shagreened.

AGETINUS JUVENCUS, n. sp.

Pl. viii., figs. 132 and 133.

♀. Brassy or bronzy, parts of antennae obscurely reddish.

Head evenly convex, without a median impression; with rather dense and small punctures, more crowded in front and behind eyes than elsewhere. Second joint of antennae distinctly longer than third. *Prothorax* and *elytra* much as on preceding species, except that the punctures are slightly denser and on the elytra rather more sharply defined. *Tibiae* distinctly ridged, the four hind ones triangularly dilated at outer apex.

Hab.—Western Australia: King George Sound (Macleay Museum), Swan River (Blackburn's collection and A. M. Lea), Bunbury (Lea), Capel River (W. D. Dodd); Perth, Albany (British Museum). Type, I. 3568.

There are six specimens before me, apparently all females; in general appearance they are like small ones of the preceding species (in fact, both the late Rev. T. Blackburn and I had them mixed with that species), but with legs entirely dark, tibiae less dilated at apex, and front ones notched near outer apex; from *compositus* it differs in being smaller and narrower, and elytra with more conspicuous punctures. On some specimens the antennae (from above) appear to be entirely dark, but usually the second and third, and the under-surface of the first, and of the fourth and fifth, are more or less obscurely reddish.

A specimen from South Australia (Lucindale, B. A. Feuerheerdt) is probably a male of this species, but it has the elytra rather more parallel-sided, prothoracic punctures more conspicuous and somewhat sparser, smooth spaces on elytra more sharply defined, and tibiae somewhat wider at apex; on its head from certain directions a vague median impression may be seen, but on the females such an impression is visible from no direction; its abdomen has a feeble longitudinal depression, and the basal joint of the four front tarsi is somewhat dilated.

AGETINUS CROESUS, n. sp.

Pl. viii., fig. 134.

♀. Bright golden-red; labrum and appendages more or less reddish, but labrum infuscated in middle and palpi at tip, and six or seven apical joints of antennae black.

Head with a sulcate median line; with crowded but rather small punctures, mostly longitudinally or obliquely confluent, but separately impressed on clypeus. Eyes feebly notched. Antennae not very long, second to sixth joints subequal in length, the five following ones distinctly wider. *Prothorax* about twice as wide as median length; sides evenly rounded, angles very feebly armed; with rather dense punctures of moderate or small size, separately impressed on disc, conspicuously transversely confluent on sides. *Scutellum* semicircular; with rather dense, minute punctures. *Elytra* short, scarcely wider than prothorax; with fairly dense punctures of moderate size, becoming larger (and often transversely confluent) behind shoulders, in places in subgeminate rows, the interspaces with minute punctures; striation of apical slope distinct towards suture and sides, feeble elsewhere. Flanks of *prosternum* with fairly large and dense punctures and fine striae. *Abdomen* rather strongly convex. *Legs* short and stout; front femora subangulate and lightly dentate; tibiae longitudinally canaliculate and dilated to apex, the front ones rather suddenly narrowed near base. Length, 4-4½ mm.

Hab.—Western Australia: King George Sound. Type, in Macleay Museum; co-type, I. 3649, in South Australian Museum.

A very beautiful species which it does not seem desirable to leave unnamed, although there are but two females of it before me. From some directions parts of the under-surface appear more or less greenish, but from others the same parts are scarcely different to the upper-surface. The sides of the prothorax might quite fairly be regarded as strigose. The upper apex of the four front tibiae, when viewed from along the upper edge, appear to be triangularly notched.

ALITTUS.

This genus is unsatisfactorily close to *Colaspoides;* indeed, but for the clothing of the head and prothorax (and even this is sometimes very slight), I should have referred all the species in the Museum to that genus. Four of the species *(micans, carinatus, politus,* and *porosus)* were previously referred to *Terillus.* The species in the Museum may be thus tabulated:—

A. Prothorax with a distinct median channel ... *porosus* (? *foveolatus)*
AA. Prothorax with a distinct median carina ... *macleayi*
AAA. Prothorax with neither distinct channel nor carina.
  B. Elytra distinctly clothed ... ... *scutellaris*
  BB. Elytra with extreme tip only clothed, and that very indistinctly.
    C. Apical half of elytra with numerous disconnected tubercles ... ... *rugipennis*
    CC. Apical half without such.
      D. Size large ... ... *micans*
      DD. Size smaller ... ... *politus*

ALITTUS FOVEOLATUS, Chp.

Terillus porosus, Jac. (?).

Pl. vii., fig. 87.

In these Transactions *(Ante,* 1898, p. 232) Mr. Blackburn, from information received from Mr. Jacoby, noted these names, together with *T. micans,* as being synonymous. But if Jacoby had information leading him to consider *foveolatus* and *porosus* synonymous, most certainly he was wrong in also so treating *micans;* although they all belong to the genus *Alittus.*

A. foveolatus was described as from Port Denison and figured (pl. cxviii., fig. 2); the figure was not referred to at the description, and was apparently overlooked by both entomologists named; but it shows an insect having sides of prothorax quite straight and narrowing to apex, agreeing with the description "bords latéraux tout à fait droits, convergents en avant"; moreover, the sides were specially mentioned in comparison with those of *Dermorhytis*. Lefevre (Cat., p. 23) also described the sides as "rectis, versus apicem attenuatis"; whereas the sides of *micans* (there are ten named specimens from the Blackburn collection in the Museum, and from the original locality, Northern Territory) are quite strongly rounded.

T. porosus was described as from Cooktown, and as having the prothorax "longitudinally obsoletely sulcate from base to apex." There are before me, from the Endeavour River (Cooktown is at the mouth of that river), three specimens that agree well with Jacoby's description, and these differ from *micans* in having the sides of the prothorax obliquely converging from base to apex (practically straight except at the extreme ends), and with a conspicuous median channel from base to apex (on *micans* there is occasionally a feeble longitudinal impression about the apex, but it is usually altogether absent), and there are numerous other distinctions in the colour, clothing, punctures, etc.

I am even doubtful as to *porosus* being a synonym of *foveolatus;* the latter was described as having elytra with "fovéoles assez larges et profondes"; and figured as having rows of very large punctures or seriate foveae. Lefevre described the elytra as "longitudinaliter foveolata." Whereas the elytra of *porosus* are not foveate, but punctate, and the punctures are very irregular in distribution.

ALITTUS MICANS, Blackb. (formerly *Terillus)*.

Pl. vii., fig. 88.

This species is not a synonym of *foveolatus* or *porosus*. See preceding note.

ALLITUS SCUTELLARIS, n. sp.

♂. Rather pale castaneous or testaceous, in places with a brassy, or brassy-green, or purplish gloss; suture infuscated. Clothed with rather dense, short, silken pubescence, sparser and shorter on elytra than elsewhere, except that the scutellum is glabrous.

Head with crowded punctures of small or moderate size; with a fairly distinct median impression. Second joint of antennae much shorter than third. *Prothorax* with sides moderately and evenly rounded, but base distinctly wider than apex; with dense punctures of moderate size, but leaving several feebly elevated on subtuberculate spaces about middle, the interspaces with numerous small punctures. *Elytra* considerably wider than prothorax; with numerous rather large punctures, in places seriate in arrangement, but with numerous transverse irregular ridges or costae, on most of basal two-thirds, on apical third with series of small depressed tubercles, or large granules of irregular shapes. Flanks of *prosternum* with numerous punctures, but partially concealed by clothing. Fifth segment of *abdomen* with a rather wide shallow basal depression. *Legs* stout; femora edentate; tibiae dilated at apex and with many acute ridges; basal joint of front tarsi strongly dilated. Length, 5-7¼ mm.

♀. Differs in having the abdomen more strongly and evenly convex, non-foveate, and in the front tarsi.

Hab.—Queensland (H. J. Carter); Northern Queensland (Blackburn's collection), Coen and Stewart Rivers (W. D. Dodd), Endeavour and Bloomfield Rivers (C. French), Charters Towers and Cairns (H. Hacker). Type, I. 3595.

In general appearance fairly close to *carinatus*, but striation less pronounced posteriorly, and transverse sculpture of elytra towards base quite evident and strong, more conspicuously clothed, etc.; the interstices on *carinatus*, *micans*, and *porosus* on the apical slope are usually entire, although somewhat undulated, but on the present species they are broken up into series of granules or small tubercles. The metallic gloss is always conspicuous on the head, prothorax, and base of elytra, the scutellum and the subtuberculate parts of the pronotum are nearly always purplish: on the male the upper-surface of the head frequently appears to be brassy, without a trace of the castaneous colour showing; the antennae are usually somewhat paler than the legs, the latter are sometimes feebly infuscated in places. On the elytra the pubescence, although distinct, is confined to the depressed parts. The median impression on the head is usually distinct, but is occasionally rather feeble; on some specimens it becomes almost subfoveate towards the base. Two specimens from Mr. French were sent as from Roebuck Bay (North-western Australia).

ALITTUS MACLEAYI, n. sp.

♂. Flavous or castaneo-flavous, in places with a bright metallic gloss; suture infuscated. Head, prothorax, and under-surface with short, and not very dense, silken pubescence, tip of elytra very feebly clothed.

Head with dense and rather small punctures; with a distinct impression along middle, and with a small polished impunctate space near each antenna. Second joint of antennae less than half the length of third. *Prothorax* with feebly rounded sides, distinctly decreasing in width from base to apex, with dense punctures of moderate size, the interspaces with minute ones; with several feebly elevated spaces along each side of middle, and with a distinct median carina. *Elytra* not much wider than prothorax, with rather large, deep punctures, in numerous more or less irregular series. Flanks of *prosternum* with conspicuous punctures and feebly striated, but close to coxae without punctures and conspicuously striated. *Abdomen* with fourth segment as long as third and fourth combined, fifth transversely depressed in middle. *Femora* edentate; tibiae somewhat dilated at apex, all with numerous acute ridges; basal joint of front tarsi inflated. Length, 6-7 mm.

♀. Differs in having the fourth segment of abdomen no longer than third, the fifth convex in middle, and in the front tarsi.

Hab.—Queensland: Somerset (C. French), Cairns district (A. M. Lea), Port Denison; New South Wales (Macleay Museum). Type, I. 3596.

In general appearance closer to *porosus* than to any other species in the Museum, but differs in having the median prothoracic channel of that species replaced by a feebly-elevated carina; a character which will also readily distinguish it from all other described species; the carina is very narrow about the apex, but elsewhere is conspicuous. The sides of the prothorax and of the elytra, and the base of the latter, are conspicuously metallic-green or blue; the elytral punctures have a more or less conspicuous purplish gloss, becoming green towards the suture and sides, but few of the body parts or of the legs are without a trace of metallic lustre, although the head and prothorax are less conspicuously metallic than on the preceding species, and the scutellum is not conspicuously purplish, but the subtubercular elevations of the pronotum are sometimes purplish; the antennae are pale-flavous. The elytra at first appear to be quite glabrous, but on close examination some minute and sparse clothing may be seen at the tip. The elytral punctures are large and closely placed, especially behind the shoulders, where, however, they are not confluent, as transverse ridges are entirely absent; on the apical slope some irregular striae containing one or two rows of punctures are apparent. The abdomen of the male is glabrous along the middle, and with the glabrous portion margined by long straggling hairs.

ALITTUS RUGIPENNIS, n. sp.

♀. Flavous; head (except in front), prothorax, scutellum, metasternum, and abdomen darker and with a purplish gloss, suture and sides of elytra and apex of hind femora infuscated. Head, prothorax, and under-surface with moderately dense, short, silken pubescence.

Head with small and dense, but not crowded punctures, becoming subobsolete on front of clypeus; median line well defined in front, becoming feeble posteriorly. Second joint of antennae about half the length of third. *Prothorax* with rather strongly and evenly rounded sides; surface somewhat uneven, and with numerous punctures of moderate size, the interspaces with minute punctures. *Elytra* distinctly wider than prothorax; with rather large punctures, and with numerous transverse or oblique ridges on basal half; apical half with series of irregular, depressed tubercles. Flanks of *prosternum* impunctate in middle, but with some fairly large ones about base and apex. *Femora* edentate; tibiae with distinct but not very acute ridges. Length, 5½-6 mm.

Hab.—Northern Territory: Darwin (G. F. Hill's No. 38). Type, I. 3597.

As on the preceding species, the elytra appear to be quite glabrous until the tip is closely examined; their sculpture, however, approaches that of *scutellaris*, except that the series of subtubercular elevations are more extended, and that the transverse ridges or rugae on the basal half are more irregular, being in places slightly elevated or subtuberculate; from that species also it differs in being smaller, paler, less metallic, punctures smaller, etc.

COLASPIS MUTICA, Germ.

This species (unknown to Australian workers) was catalogued by Lefevre as belonging to *Edusa*, without authority or note being given for the transfer. *C. chrysura* and *C. suaveola* of Germar, described at the same time, certainly belong to that genus, but *mutica* was noted as having unarmed femora and glabrous upper-surface, so that its right to a position in the genus is open to question. Judging by the description, it seems close to *Agetinus subcostatus*, but as the head is described as having scattered punctures, and as on *subcostatus* they are very dense, it is probably not that species.

EDUSOIDES PULCHER, Blackb.

Pl. viii., fig. 158.

The late Rev. T. Blackburn was in doubt when he described this species as to whether some females really belonged to the same species as the type male; later he appears to have been satisfied that they belonged to the species, as he marked them, without a query, as co-types. One male and two females are now in the Museum, and they appear to belong to but one species; the great differences in the colours of the sexes are far from unique in the subfamily.

COLASPOSOMA SELLATUM, Baly.

Pl. vii., fig. 99.

This species occurs in abundance in many of the tropical parts of Australia. The commonest form is of a bright-green with a more or less brassy gloss in places, but it varies to golden-red, brassy, bronzy, blue, and purple.

COLASPOIDES.

This genus, of almost world-wide distribution, is unsatisfactorily close to many others (*Terillus*, *Geloptera*, *Cleptor*, etc.), and it is extremely probable that exception will be taken to the inclusion of several species here referred to it. The main characters of the genus, as regarded by Lefevre in his table, and in the generic diagnosis, are as follows:—"Upper-surface glabrous. Eyes notched.(88) Prothorax with sides margined. Elytra not conspicuously transversely rugose. Prosternal episterna convex in front. Four hind tibiae not notched near outer apex. Claws appendiculate." The species that I here refer to the genus all agree in these characters, except that the prosternal episterna are not always convex in front, and that the elytral punctures are sometimes transversely confluent. On some specimens also the sides of the prothorax are very feebly undulated, but certainly not dentate. They all have the tibiae more or less conspicuously longitudinally canaliculate. Lefevre regarded it as including species with dentate and others with edentate femora. On most species of the genus the abdomen of the male appears to have six segments, owing to the intrusion of the pygidium. The deep median sulcus of the latter, that appears to be invariably present on members of the subfamily, often appears like a notch to the tip of the abdomen; this is especially conspicuous on *pictipes*. For purposes of classification I am regarding the genus as comprising three divisions:—

Div. 1.—Femora edentate.

Div. 2.—Front femora dentate. Sides of prothorax evenly rounded in middle.

Div. 3.—Front femora dentate. Sides of prothorax feebly undulated in middle.

---

(88) Blackburn (*Ante*, 1900, p. 168) wrote, "I can really find no very marked character to distinguish *Cleptor* from *Colaspoides*, except in its eyes being almost without sinuation."

The species in the Museum may be tabulated as follows:—

A. Femora edentate.
a. Flanks of prosternum at most with small shallow punctures.
* Dark metallic-blue ... ... *rara*
** More or less castaneous.
b. Sides of prosternum adjacent to coxae strongly striated ... ... *howensis*
bb. Sides there scarcely visibly striated ... *norfolcensis*
aa. Flanks of prosternum with distinct and usually large punctures.
c. Punctures there mostly small but mixed with considerably larger ones ... ... *frenchi*
cc. Punctures there more or less uniform in size.
d. Elytral punctures much smaller than the spaces between them ... ... *quieta*
dd. Elytral punctures mostly wider than the spaces between them.
e. Fifth segment of abdomen of male overhanging fourth . . .. *complicata*
ee. Fifth not overhanging fourth ... *hoblerae*
AA. Front femora dentate.
B. Sides of prothorax gently undulated in middle.
f. Prothoracic punctures comparatively dense and coarse ... ... *similis*
ff. Prothoracic punctures much smaller and sparser ... ... *parvidens*
BB. Sides of prothorax not undulated in middle.
C. Hind femora strongly dentate ... ... *pictipes*
CC. Hind femora edentate.
D. Sides of prothorax oblique and straight *rectilatera*
DD. Sides more or less evenly rounded.
E. Third joint of antennae at least one-third shorter than fourth.
* Hind tibiae of male suddenly and strongly inflated near base ... *anomogastra*
** Hind tibiae not so inflated.
g. Seventh and eighth joints decidedly darker than the preceding ones ... ... *picticornis*
gg. Those joints not darker ... ... *tarsalis*
EE. Third joint not much, if at all, shorter than fourth.
F. Of small size and feebly, if at all, metallic.
h. Each elytron with at least five distinct striae on apical slope *pallidula*
hh. Each with less than five there *doddi*
FF. Larger and conspicuously metallic.
G. Elytra with transverse rugae on parts of apical slope.
i. Many punctures confluent on sides of prothorax ... ... *acervata*
ii. No punctures confluent there *crassipes*
GG. Elytra with no transverse rugae on parts of apical slope.

H. Punctures of prothorax mostly longer than wide ... ... *suavis*

HH. Punctures of prothorax seldom or never longer than wide.

I. Fourth segment of abdomen of male conspicuously bicarinate ... ... *bicarinata*

II. Fourth segment not bicarinate.

J. Fourth segment of male carinated or ridged along middle.

j. Third segment of male armed at apex towards each side ... ... *mimeta*

jj. Third segment not so armed.

k. Basal joint of hind tarsi of male as long as the rest combined *elegantula*

kk. Basal joint much shorter ... ... *poeciloderma*

JJ. Fourth segment of male not carinated along middle.

K. Hind tibiae of male suddenly and strongly dilated near apex ... *foveiventris*

KK. Hind tibiae not so dilated.

L. Hind tibiae of male notched near lower apex ... ... *haemorrhoidalis*

LL. Hind tibiae not so notched ... ... *heroni*

Division 1.

COLASPOIDES HOWENSIS, n. sp.

Pl. viii., figs. 135-137.

♂. Dark-castaneous, some parts darker, with a more or less conspicuous coppery-green gloss; antennae variegated.

Head with dense punctures, fairly coarse in front, becoming smaller towards base; with an impunctate elevated space near each antenna and with a short median line; clypeus deeply notched. Antennae long; first joint stout, second short, third to seventh somewhat dilated and each longitudinally depressed on one side, eighth to eleventh thinner. *Prothorax* with sides (for the genus) rather strongly reflexed, each angle obtusely dentate and bearing a bristle; with fairly dense and deep but not very large punctures, interspersed with much smaller ones. *Elytra* with semi-double rows of punctures of moderate size, larger and more irregular behind shoulders than elsewhere, with much smaller ones scattered about; reflexed margins almost as wide as on prothorax. *Prosternum* with each episternum straight and oblique in front, strongly produced to each side, and with conspicuous sutures; each epimeron strongly striated close to the coxa; flanks with scattered shallow and small punctures. Fifth segment of *abdomen* with a small but deep median fovea. *Legs* stout; tibiae dilated at apex, upper-surface conspicuously grooved throughout. Length, 10-12 mm.

♀. Differs in the clypeus being less conspicuously notched, labrum shorter, antennae shorter and much thinner, fifth segment of abdomen with a feeble depression only and basal joint of four front tarsi smaller.

Hab.—Lord Howe Island (Macleay Museum and J. Waterhouse). Type, I. 3504.

At first appears to be a very large *Rhyparida*, but each tibia has a conspicuous groove extending from the base to the apex, bounded by acutely raised costae and widely open at the apex; the outer apex is subtriangularly dilated, so that the space before same is incurved, but as there is no projection between the curve and the base the tibiae cannot be regarded as notched near the outer apex (such as they are represented to be in the figure of *Eurydemus insignis*—stated to be a synonym of *E. (Rhyparida) grandis)*. Each claw has a wide basal appendix rectangular at its outer apex. One male has the head and prothorax almost black. The antennae of the type have the first and eleventh joints reddish, the second black, and the others with the upper portion black and the lower red, the two colours being sharply limited, but another male and two females have much less conspicuously variegated antennae.

This and the following species are referred with some doubt to the genus. According to Chapuis' and Lefevre's tables they would belong to the *Iphimeitae*, but the sections of the subfamily, according to that table, so largely depend on the utterly untrustworthy character of the prothoracic episterna that I cannot regard the table as other than misleading. According to it *Terillus*, *Rhyparida*, *Eurydemus*, and *Colaspoides* all belong to different sections, but they are really all closely allied.

COLASPOIDES NORFOLCENSIS, n. sp.

♂. Reddish-castaneous; parts of head, of prothorax, and of under-surface more or less deeply infuscated.

Head with small punctures, larger (but not very large) between eyes than elsewhere; with a small impunctate space near each antenna, with a conspicuous median line from base to near clypeus, this conspicuously notched. Antennae rather long and thin, third and fourth joints subequal. *Prothorax* with narrowly reflexed sides, angles very feebly armed; with small and rather sparse punctures, and with much smaller (scarcely visible) ones. *Elytra* shagreened, with semi-double rows of small punctures, becoming single posteriorly and irregular towards sides; margins very narrow. Fifth segment of *abdomen* with a circular median fovea. Length, 6-7 mm.

♀. Differs in having clypeus less deeply notched, antennae somewhat thinner, and in the abdomen and tarsi.

Hab.—Norfolk Island (J. C. Wiburd). Type, I. 3505.

Fairly close to the preceding species and with somewhat similarly grooved although thinner tibiae, but smaller, differently coloured, with different punctures, and lateral gutter of each elytron much narrower; the parts of the prosternum are of much the same shapes, but the sides close to the coxae are scarcely visibly striated, and the flanks are entirely without punctures. On the prothorax there is a large blackish blotch towards each side; on one specimen each blotch is sharply defined, but on three others its limits are much less conspicuous; the dark parts sometimes have a vague greenish lustre. Some specimens have the elytra almost of a blood-red.

COLASPOIDES FRENCHI, n. sp.

♂. Reddish-testaceous; all margins of prothorax, base, suture, and sides of elytra metallic-green, or blue, or purple. *Head* with rather dense punctures of moderate size; with a lightly-impressed impunctate median line. Antennae extending to hind coxae, third and fourth joints subequal. *Prothorax* with fairly dense punctures of moderate size but rather deep, and denser towards sides than on disc, interspersed with much smaller ones. *Elytra* with rather large punctures with a somewhat lineate arrangement, on apical slope in regular deep striae towards suture, and feebly transversely confluent towards sides, larger behind shoulders than elsewhere. *Prosternum* with front margin of each episternum distinctly elevated in middle; flanks with small punctures and with a few larger ones scattered about. Fifth segment of *abdomen* with a wide median fovea. Basal joint of each *tarsus* somewhat inflated. Length, 6½-8 mm.

♀. Differs in being larger (9 mm.), abdomen more strongly convex and non-foveate, and in the tarsi.

Hab.—North-western Australia: Roebuck Bay (C. French); Western Australia (British Museum, from Baly's collection). Type, I. 3287.

A beautiful insect; the metallic parts are sharply defined at the edges and the suture, but then rapidly fade into the general colour, the elytral punctures from some directions have a watery look, and from others a purplish gloss; parts of the under-surface have a metallic gloss.

COLASPOIDES RARA, n. sp.

♀. Dark metallic-blue, in places with a greenish or coppery gloss; parts of antennae and of palpi obscurely diluted with red.

Head rather convex, not depressed between eyes, median line rather strongly impressed at base but feeble elsewhere; punctures between eyes rather dense and of moderate size, smaller and sparser towards base, and much smaller and denser on front of clypeus. Eyes rather narrow. Antennae not very thin, third and fourth joints subequal. *Prothorax* strongly convex, rather lightly transverse, with the apex scarcely as wide as the median length, sides strongly rounded and with very narrow margins; with not very dense and rather small punctures, and some much smaller ones scattered about. *Elytra* with punctures much as on prothorax, except that in places a feeble seriate arrangement may be noticed, apical slope with distinct sutural and lateral striae, but elsewhere without same. Flanks of *prosternum* somewhat wrinkled, and with rather small and unevenly distributed punctures; episterna strongly rounded in front, and with deep sutures. *Femora* unarmed; tibiae conspicuously canaliculate along upper-surface. Length, 9 mm.

Hab.—South Australia. Type (unique) in Macleay Museum.

A well-marked species with the front of the prosternal episterna more strongly rounded than on any other species of the genus, or perhaps of the subfamily.

COLASPOIDES QUIETA, n. sp.

♀. Of a rather dingy flavous, prothorax with a vague metallic gloss and in places feebly infuscated, suture narrowly infuscated; parts of under-surface more or less deeply infuscated.

Head with rather dense punctures of moderate size. Antennae rather thin, second joint more than half the length of third, the latter slightly shorter than fourth. *Prothorax* with rather dense punctures of moderate size, becoming denser on sides than on disc. *Elytra* with semi-double rows of moderate punctures, becoming condensed into single rows in deep striae posteriorly, near shoulders feebly transversely rugose. *Prosternum* with front edge of each episternum very gently incurved, lateral extension very narrow; flanks with numerous sharply-defined punctures of moderate size. Length, 6½-7 mm.

Hab.—North-western Australia: Roebuck Bay (C. French). Type, I. 3506.

Closely allied to the preceding species, but colour, punctures, and prosternal episterna different. One specimen has almost the whole of the under-surface infuscated, but on another the infuscation is confined to the metasternum; one has a fairly well-defined impunctate line on the head, but the other is without same.

COLASPOIDES COMPLICATA, n. sp.

Pl. vii., fig. 95.

♂. Dark reddish-brown, with a conspicuous brassy or brassy-green gloss; under-surface blackish with a metallic gloss, parts of legs and apex of antennae more or less deeply infuscated.

Head with dense and rather coarse punctures, becoming smaller on clypeus and sparser towards base, with a fairly distinct median line, and with a small impunctate elevated space near each antenna. Antennae rather long, third joint slightly shorter than the fourth. *Prothorax* about once and one-half as wide as long; with dense, rather large, and deep punctures, becoming crowded on sides. *Elytra* with larger punctures than on prothorax, crowded and in places transversely confluent, with deep but irregular striae on apical slope. *Prosternum* with distinct striae close to coxae; flanks with large but not very dense punctures. *Abdomen* with fourth segment strongly incurved to middle, and with fifth overhanging same. Basal joint of four front *tarsi* strongly inflated. Length, 7-7½ mm.

♀. Differs in having somewhat thinner antennae, abdomen simple, and basal joint of four front tarsi much smaller.

Hab.—Queensland (British Museum, from "Challenger" Expedition): Brisbane (A. J. Coates); New South Wales: Richmond and Clarence Rivers (Macleay Museum), Richmond River (British Museum). Type, I. 3507.

The fifth segment of the abdomen of the male is very peculiar; it looks as if, when soft, the pygidium had been driven inwards, forcing its middle backwards, and with the adjacent sides elevated into keels, these being quadrilobed posteriorly; the middle of the segment has two small tubercles connected with the base of the keels by slight ridges. Two specimens (sexes) from the Tweed River (H. H. D. Griffith) differ in being of a dull red and without metallic gloss, but the structure of the abdomen of the male is exactly as on the type.

COLASPOIDES HOBLERAE, n. sp.

♂. Reddish-brown, with a conspicuous brassy or brassy-green gloss; most of under-surface and tips of antennae infuscated.

Head with rather crowded and coarse punctures, becoming smaller on clypeus and sparser and smaller towards base. Antennae moderately long, second joint more than half the length of third, the latter slightly shorter than fourth. *Prothorax* almost as long as wide, sides subangularly dilated in middle; with dense, rather large and deep punctures. *Elytra* with larger punctures than on prothorax, in deep striae on apical slope, but crowded and irregular elsewhere, many transversely confluent about middle, except near suture. *Prosternum* striated close to coxae; flanks with large crowded punctures. Fourth segment of *abdomen* strongly incurved to middle, fifth depressed transversely, middle of base elevated, each side of middle of apex lobed. Length, 5½-6½ mm.

♀. Differs in having abdomen more convex and simple, and in the tarsi.

Hab.—Queensland: Dalby (Mrs. F. H. Hobler). Type, I. 3508.

Closely allied to the preceding species, but smaller and thinner, and with abdomen of male very different; the front margins of its prosternal episterna are gently rounded, and on the preceding species feebly incurved, characters that, according to Chapuis, would cause the species to be placed in two widely-separated divisions of the subfamily. Of the three specimens under examination, one of each sex has a fairly well-defined median line on head, and a small inter-ocular depression, but the other is without same.

Division 2.

COLASPOIDES RECTILATERA, n. sp.

Pl. vii., figs. 61 and 89.

Flavous, abdomen with a slight reddish gloss.

Head almost impunctate, except close to eyes and on clypeus; medio-frontal impression short and distinct. Eyes of moderate size, prominent, and widely separated. Antennae extending almost to apical segment of abdomen, second joint about half the length of third, tenth distinctly inflated at apex, where the width is more than that of eleventh. *Prothorax* about twice as wide as long, sides obliquely decreasing in width from base to apex, front angles acute, but not armed;

with small punctures scattered about, and a few moderately large ones on sides. *Elytra* rather elongate, scarcely wider than base of prothorax; with fairly dense punctures, not arranged in regular rows, and of almost even size throughout. Flanks of *prosternum* impunctate. Front *femora* strongly dentate. Length, 5 mm.

Hab.—North-western Australia: Fortescue River (W. D. Dodd). Type (unique), I. 3418.

The elytral punctures are not arranged in regular rows, but a few feeble longitudinal elevations (about four on each elytron) appear to divide them off into certain feebly-defined areas; on the apical slope, however, the striation is sharply pronounced, and the punctures in each stria are distinct. The middle tibiae appear to be very feebly notched near the outer apex, but the notch is much less distinct than on any species of *Rhyparida;* the antennae, front legs, and elytral striation are also different to those of any species of that genus. The tip of the antennae is but lightly infuscated. The type is probably a male, as the fourth segment of its abdomen is decidedly longer than the third, the fifth is widely incurved at the apex, but not distinctly impressed; the basal joint of the four front tarsi is moderately large.

COLASPOIDES TARSALIS, n. sp.

Pl. viii., figs. 138 and 159.

♂. Reddish-brown with a metallic-green gloss, appendages (tips of antennae and claws excepted) paler.

Head depressed and with rather numerous distinct punctures between eyes, much smaller and sparser elsewhere, with a feeble median line. Antennae elongate, second joint almost as long as third, the latter scarcely half the length of fourth, fourth and fifth subequal in length and wider than the following ones. *Prothorax* with rather large irregularly distributed punctures, nowhere very dense, but larger on sides than on disc. *Elytra* with dense and rather large punctures, becoming smaller and in regular striae posteriorly, and frequently confluent behind shoulders. Flanks of *prosternum* with punctures on basal half only. Fourth segment of *abdomen* with a wide, shallow median impression and a smaller one on each side; fifth about half the length of fourth and irregularly transversely impressed. Front *femora* acutely dentate; hind tibiae with apical two-fifths dilated on lower-surface; basal joint of four front tarsi strongly inflated. Length, 6½-7½ mm.

♀. Differs in having evenly convex abdomen, with fifth segment scarcely shorter than fourth, simple hind tibiae, and basal joint of four front tarsi much smaller.

Hab.—Queensland: Cairns district (F. P. Dodd and A. M. Lea). Type, I. 3509.

The metallic gloss, although distinct on all the specimens before me, is not so pronounced as to cause them to appear of a bright-green colour. The fifth joint of the antennae of the male is rather densely clothed on the under-surface, becoming fasciculate at apex; on the female the third joint is distinctly longer than the second, and more than half the length of the fourth, although decidedly shorter; the fourth and fifth also are somewhat thinner (instead of stouter) than the following ones.

This and the eight following species (89) at first appear to be forms or varieties of but one species, and the punctures on the heads of the majority of them appear to be individually variable, the colours are also usually variable; but the males may be quite readily distinguished by characters of the antennae, abdomen, and legs. The females, however, are less readily distinguished, and probably without the males it would be difficult or impossible to satisfactorily identify most of them.

COLASPOIDES PICTICORNIS, n. sp.

Pl. viii., fig. 139.

♂. Reddish-brown with a conspicuous brassy or brassy-green gloss; appendages flavous, but seventh and eighth joints of antennae almost black, and tips of ninth, tenth, and eleventh infuscated.

Head depressed between eyes; with rather dense punctures of moderate size, becoming smaller and denser on clypeus, and sparser towards base. Antennae rather long and thin, second joint about half the length of third, the latter somewhat shorter than fourth. *Prothorax* with fairly dense punctures of moderate size, becoming slightly larger on sides. *Elytra* with fairly large punctures, rather dense and irregular behind shoulder (where a few are occasionally confluent), in regular deep striae on apical slope, and mostly in semi-double rows elsewhere. Flanks of *prosternum* with unevenly distributed punctures of moderate size. Fourth segment of *abdomen* much wider at sides than along middle, with an obtuse tubercle or ridge in middle; fifth much shorter than fourth, depressed in middle and obtusely lobed on each side. Front *femora* acutely dentate; hind tibiae with apical half somewhat inflated and moderately curved; basal joint of four front tarsi distinctly inflated. Length, 5½-6 mm.

♀. Differs in having evenly convex abdomen, whose fifth segment along the middle is quite as long as fourth, hind tibiae simple, basal joint of four front tarsi much less inflated, and antennae not conspicuously paler between the eighth joint and apex.

---

(89) *Haemorrhoidalis* less noticeably so than the others.

Hab.—Queensland: Brisbane (A. J. Coates, R. Illidge, A. J. Turner), Dalby (Mrs. F. H. Hobler), Mount Tambourine, Rockhampton (A. M. Lea). Type, I. 3275.

Some males have the upper-surface slightly paler than the under, but usually much darker; on females the body parts are sometimes almost black; on the males the knees are slightly infuscated, on the females they are usually deeply infuscated, and some have the legs almost entirely dark. The inflated joints of the male tarsi, although large, are much less conspicuous than on the preceding species. Each of the prosternal episterna, when viewed from behind, appears to have its front margin gently rounded; from above it appears to be straight in an oblique direction, and from in front (with the head removed) it appears to be gently concave. Similar comments might be made about many other species of the subfamily.

COLASPOIDES BICARINATA, n. sp.

♂. Brassy-green; under-surface castaneous, appendages flavous.

Head uneven between eyes, with fairly large punctures there, becoming smaller and denser on clypeus and much smaller elsewhere; with a strongly defined but not continuous median line. Antennae long and thin, second joint about half the length of third, the latter somewhat shorter than fourth, eighth wider than the adjacent ones. *Prothorax* and *elytra* with smaller punctures, but otherwise much as on *tarsalis*. Flanks of *prosternum* almost or quite impunctate. Fourth segment of *abdomen* with a very conspicuous carina from base to apex towards each side; fifth much shorter than fourth and somewhat irregularly depressed. *Legs* much as in preceding species. Length, 5½-7¼ mm.

♀. Differs in having the abdomen simple, and in the tibiae and tarsi.

Hab.—New South Wales: Tweed and Richmond Rivers (Macleay Museum, R. Helms, and A. M. Lea). Type, I. 3274.

Very distinct by the abdomen of the male. The females are usually less metallic than the males; the tip of the antennae is usually lightly infuscated. Some specimens appear to have the head almost impunctate between the eyes and on the clypeus, but on others the punctures, at least those beween the eyes, are fairly coarse. A small, pale, almost non-metallic female, from Mount Tambourine, probably belongs to this species.

COLASPOIDES HERONI, n. sp.

♂. Brassy-green; under-surface castaneous, appendages flavous, but four apical joints of antennae and part of seventh black.

Head uneven between eyes, with dense and rather coarse punctures there, becoming smaller and denser on clypeus, and much sparser and smaller elsewhere; median line well defined. Antennae rather long and thin, second joint slightly more than half the length of third, the latter distinctly shorter than fourth. *Prothorax* with large, irregularly distributed punctures, sometimes becoming crowded on sides. *Elytra* with somewhat smaller punctures, but otherwise much as on *tarsalis*. Flanks of *prosternum* with a few scattered punctures. Fourth segment of *abdomen* somewhat irregularly transversely elevated in middle; fifth somewhat shorter than fourth, rather widely foveate in middle. *Legs* much as on *picticornis*. Length, 5½-6 mm.

♀. Differs in having thinner antennae, more convex and simple abdomen, and in the tibiae and tarsi.

Hab.—New South Wales: Dorrigo (W. Heron); Queensland: Killarney (H. H. D. Griffith, from R. Illidge). Type, I. 3277.

On some specimens parts of the under-surface are deeply infuscated, as occasionally are parts of the legs.

COLASPOIDES ELEGANTULA, n. sp.

Pl. viii., fig. 160.

♂. Brassy-green; under-surface reddish-castaneous; appendages flavous, but four apical joints of antennae blackish.

Head irregular between eyes, and with some fairly large but irregular punctures there, elsewhere much smaller and sparser; with a small, impunctate, elevated space near each antenna. Antennae long and thin, second joint not half the length of third, the latter equal to fourth. *Prothorax* with irregularly distributed and sparse, comparatively small, but sharply defined punctures. *Elytra* with punctures of moderate size, becoming larger, crowded, and more or less confluent behind shoulders, smaller and in almost regular striae on apical slope, and in semi-double rows elsewhere. Flanks of *prosternum* with a few scattered punctures. *Abdomen* depressed along middle, third, and fourth segments, each with a median ridge, the fourth transversely depressed across apex, and twice as long as third, fifth short and irregularly impressed. Front *femora* acutely dentate; hind tibiae rather feebly dilated on apical half; basal joint of four front tarsi strongly inflated, basal joint of hind ones unusually long. Length, 7 mm.

Hab.—Queensland: Cairns district (Macleay Museum, E. Allen, and A. M. Lea), Kuranda (H. J. Carter, from G. E. Bryant). Type, I. 3510.

In general appearance close to the preceding species, but more elongate, prothoracic punctures considerably smaller and sparser, basal joint of each of the four front tarsi even larger, and that of the hind ones distinctly longer and thinner. The prothoracic punctures are smaller and sparser than on any of the closely-allied species, and on the type are no larger or denser on the sides than on the disc, but on one female they are somewhat larger and denser there. The basal segment of the abdomen is moderately clothed, and in addition there are some long hairs scattered about. Two females (5½-6½ mm.) that probably belong to this species differ in being more robust and under-surface darker (on one almost entirely purplish); one has antennae coloured as the type, but on the other only the apical joint is dark; the abdomen is evenly convex, fourth segment no longer than third and not much longer than fifth, hind tibiae shorter but otherwise much the same, basal joint of four front tarsi much smaller, and of the hind pair much shorter.

COLASPOIDES ANOMOGASTRA, n. sp.

Pl. viii., fig. 140.

♂. Reddish-castaneous, with a metallic coppery or bluish gloss.

Head irregularly depressed between eyes, median line well defined, a conspicuous impunctate, slightly elevated space near each antenna; with irregularly distributed and rather small punctures, becoming rather dense on clypeus, and very small on front of same. Antennae long and thin, third joint conspicuously shorter than fourth. *Prothorax* about twice as wide as long; with rather dense and large punctures on sides, much sparser about middle. *Elytra* elongate; with fairly large punctures, larger (and sometimes transversely confluent) behind shoulders than elsewhere, in places in subgeminate rows, and becoming small posteriorly, on apical slope confined to distinct striae. Flanks of *prosternum* finely wrinkled, and with numerous fairly large punctures. *Abdomen* with fourth segment as long as second and third combined, obtusely raised in middle, thence widely subtriangularly flattened to near apex, the apex itself narrowly depressed, fifth somewhat oblique, shallowly depressed in middle. Front *femora* strongly dentate, hind ones subangulate; hind tibiae rather long, suddenly dilated near base and then gently curved to apex; basal joint of four front tarsi strongly dilated, of the hind ones elongate-triangular. Length, 6¼-6½ mm.

Hab.—Queensland. Type in Macleay Museum; co-type, I. 3644, in South Australian Museum.

The prothoracic margins are very feebly undulated in middle, but the degree is so slight that it could be easily overlooked, and the species is so obviously allied to *picticornis* and *tarsalis* that it was not referred to B in the table; from the species named, however, it is readily distinguished by the hind tibiae. The two specimens before me have parts of the appendages somewhat paler than the general colour, but probably on fresh ones the contrast would be more accentuated. Owing to the sculpture of the fourth segment the abdomen at first appears to be composed of six segments, or seven if the pygidium is included. Both specimens had parts of the under-surface and appendages eaten by *Anthreni* when received, but between the two all parts are available for description.

COLASPOIDES MIMETA, n. sp.

♂. Reddish-castaneous with a conspicuous coppery-green gloss; appendages mostly paler, but apical and half of subapical joints of antennae black.

Head shallowly impressed between eyes, median line lightly impressed; with moderately dense punctures of medium size, becoming smaller towards base, and small and sparse on front of clypeus. Antennae long and thin, third joint very little shorter than fourth. *Prothorax* with strongly and evenly rounded sides, angles distinctly armed; with rather large, unevenly distributed punctures, sparser about middle than elsewhere. *Elytra* as on preceding species, except that the punctures are somewhat larger. Flanks of *prosternum* feebly wrinkled in places, and with a few scattered punctures. *Abdomen* with a shallow depression common to the three median segments, the depression bounded on each side of third with a conspicuous but short apical ridge, fourth about once and one-third the length of third, narrowly depressed at apex, and with a conspicuous median carina, fifth with a small median fovea. Front *femora* strongly dentate; hind tibiae moderately long, nowhere suddenly dilated, but lower-surface somewhat sinuous; basal joint of four front tarsi strongly inflated. Length (♂, ♀), 6-7 mm.

♀. Differs in being more compact, abdomen more convex, fourth segment shorter than third, and all simple, hind tibiae shorter, straighter, and evenly dilated from base to apex, and in the tarsi; more conspicuously metallic, and more of antennae black.

Hab.—New South Wales: Dorrigo (W. Heron). Type, I. 3645.

Allied to *bicarinata* and with somewhat similar legs, but fourth segment of abdomen of male shorter, carinated along middle, and with but feeble elevations at the positions of the acute carinae of that species; the third segment is also different, as it has a short acute ridge (from the side it appears almost as a subconical tubercle) at about one-third the width of the segment from the side; the second appears to have remnants of similar elevations in a line with those on the third. The femora, palpi, and antennae are mostly flavous; parts of the under-surface are paler than other parts, but the various shades of colour are not sharply limited.

COLASPOIDES POECILODERMA, n. sp.

Pl. viii., fig. 161.

♂. Brassy-brown, or bronzy, or brassy-green; under-surface blackish, with a bluish or greenish gloss, but tip of abdomen diluted with red; labrum, front of clypeus, and appendages more or less reddish, but apical joint of palpi and apical half (or less) of antennae blackish.

Head shallowly depressed between eyes, median line rather feeble; with irregularly distributed punctures of moderate or rather small size, becoming very small on front of clypeus. Antennae rather long and thin, third and fourth joints subequal. *Prothorax* about twice as wide as the median length; with large and not very dense punctures, becoming sparse towards middle. *Elytra* with punctures and striae much as on *anomogastra.* Flanks of *prosternum* with some punctures about base only, elsewhere shining and with a few wrinkles. Third segment of *abdomen* with a rather short median ridge, fourth distinctly longer than third, with a conspicuous subtriangular median ridge, behind same oblique to apex, fifth irregularly transversely depressed, and with a median fovea. Front *femora* strongly dentate; hind tibiae feebly dilated from base to middle, and then gently curved to apex; basal joint of four front tarsi rather strongly dilated, of the hind ones elongate-triangular. Length, 6-7 mm.

♀. Differs in being more compact, abdomen more convex and simple, legs shorter, hind tibiae gently dilated from base to apex, and in the tarsi.

Hab.—New South Wales: Acacia Creek (H. J. Carter). Type, I. 3646.

Fairly close to *elegantula*, but male with basal joint of four front tarsi less conspicuously inflated, and of the hind ones much shorter and differently shaped. *Heroni* is of smaller average size, with the abdomen of the male very different, and basal joint of hind tarsi distinctly longer (although shorter than on *elegantula).* From *tarsalis* (to which at first glance it appears to belong) it is readily distinguished by the abdomen and tarsi. One male is without the ridge on the third abdominal segment, but from *picticornis* it is distinguished by each basal joint of tarsus distinctly shorter than the corresponding one on that species, and antennae with third and fourth joints not conspicuously differing in length. Some specimens are reddish-castaneous with but a slight metallic gloss, others are almost black, and others again are of a vivid-green; on the paler specimens sometimes only the apical joint of the antennae is black. Some specimens appear to have the clypeus almost equilaterally triangular, owing to its lateral sutures being better defined than usual.

Two pale specimens from the Clarence River (Macleay Museum) probably belong to this species, but the male has the basal joint of the four front tarsi somewhat larger than usual (although much smaller than on *tarsalis* and *elegantula);* the punctures on the prothorax of the female are also much larger and denser than on the male, but the abdomen and tibiae of the male are as on the type.

COLASPOIDES HAEMORRHOIDALIS, n. sp.

Pl. viii., fig. 141.

♂. Brassy-black, or bronzy with a greenish gloss; labrum, tip of abdomen, and legs bright-red, palpi (tips excepted) flavous, antennae flavous or reddish, three or four apical joints partly or entirely black.

Head feebly impressed between eyes, and with median line very feeble; with fairly dense and rather large punctures, denser on clypeus and smaller on front of same than elsewhere. Antennae moderately long, second and third joints subequal. *Prothorax* about thrice as wide as long; with large and fairly dense punctures, becoming smaller and sparser about middle. *Elytra* suboblong; with fairly large punctures, larger behind shoulders than elsewhere, in places in subgeminate rows, and confined to distinct striae on parts of apical slope. Flanks of *prosternum* faintly wrinkled, and with numerous distinct punctures. Fourth segment of *abdomen* slightly longer than third, fifth with a curved transverse impression. Front *femora* strongly dentate; tibiae rather stout, the hind ones distinctly notched near lower apex. Length, 5¼-5½ mm.

♀. Differs in having the fourth segment slightly shorter than third, fifth not transversely impressed, appendages somewhat shorter, and hind tibiae not notched.

Hab.—New South Wales: Kurrajong (Macleay Museum, from G. Masters), Gosford, Springwood (H. J. Carter), Dorrigo (W. Heron). Type, I. 3647.

Of the size of *heroni*, but darker and with very different hind tibiae of the male, these being notched much as on *similis* and *parvidens*. In some lights the impunctate spaces on the head are conspicuously brassy; the legs are of an unusually bright-red. The tip of the abdomen, although red in the female, is less conspicuously so than on the male. The elytral punctures are nearly all isolated, but a few of them from some directions appear to be feebly transversely confluent. The sexual differences are sufficiently distinct, but less pronounced than usual, especially with the tarsi, the basal joint of the four front ones of the male being but little larger than the corresponding ones of the female. On one specimen the sides of the prothorax are very feebly undulated in the middle, but on all the others they are evenly rounded there.

COLASPOIDES FOVEIVENTRIS, n. sp.

Pl. viii., fig. 142.

♂. Of a vivid golden-green, labrum and appendages reddish-flavous.

Head uneven between eyes; with dense and fairly large punctures there, becoming denser and smaller on clypeus, and denser and sparser elsewhere; with an impunctate elevated space near each antenna, median line and clypeal sutures well defined. Antennae rather long and thin, third and fourth joints subequal. *Prothorax* with irregularly distributed punctures of moderate size. *Elytra* more robust than in *elegantula*, but with very similar punctures. Flanks of *prosternum* with fairly numerous punctures about base, but sparse elsewhere. Fifth segment of *abdomen* not much shorter than fourth along middle, and with a quite circular median fovea. Front *femora* moderately dentate; hind tibiae with apical third suddenly and strongly dilated on lower-surface, and with a long apical bristle; basal joint of four front tarsi inflated. Length, 5½-6½ mm.

♀. Differs in having the abdomen more convex and simple, and in the hind tibiae and four front tarsi.

Hab.—Queensland: Cairns (Macleay Museum and F. P. Dodd).

On the female the under-surface is sometimes purplish instead of green; the antennae are sometimes slightly infuscated at the tip. A female from Kuranda, in Mr. Griffith's collection, is of a bluish-purple, in some places with reddish-purple reflections, and in others with brassy-green ones, the two apical joints of its antennae are black. A male almost similarly coloured is in the Macleay Museum. The clypeus, except for a slight apical incurvature, is almost equilaterally triangular. The prothoracic punctures are not much larger towards the sides than on the disc, near the margins they are very sparse. In the late Rev. T. Blackburn's collection a specimen of the species was numbered 4412, and that number was noted as *Colaspoides xanthopus*, but *xanthopus* struck out; I have, in fact, seen it in several collections as that species, but it differs from it in the armed front femora, hind tibiae with apical bristle, and in the different punctures.

COLASPOIDES SUAVIS, n. sp.

♀. Of a vivid golden-green; parts of under-surface bluish-green, labrum and appendages flavous, but four apical joints of antennae blackish.

Head with fairly dense punctures of moderate size; median line in places well defined. Antennae rather long and thin, third and fourth joints subequal. *Prothorax* with dense punctures of moderate size, and mostly longer than wide, denser on sides than on middle. *Elytra* with dense punctures of moderate size, becoming smaller posteriorly, but crowded, larger, and more or less confluent behind shoulders. Flanks of *prosternum* with fairly large, crowded punctures. Length, 5½-5¾ mm.

Hab.—Queensland (Macleay Museum), Coen River (W. D. Dodd and H. Hacker). Type, I. 3511.

This species might very well have been referred to *Cleptor*, but as the front femora are strongly dentate, and eyes moderately notched, it was referred to *Colaspoides;* at first glance the specimens appear as if they were small ones of the preceding species, but the prothorax has much denser punctures, they are also nearly all elliptic, and when viewed from the sides a few appear to be vaguely confluent. One specimen has most of the body-parts purple, with head and prothorax brassy-purple, and scutellum and suture bluish. On parts of the elytra the punctures appear to be in semi-double rows, but they do not become condensed into distinct striae posteriorly, only one subsutural stria being distinct on each elytron.

COLASPOIDES PALLIDULA, n. sp.

♂. Flavous.

Head rather more convex than usual; with fairly dense punctures of moderate size between eyes, becoming denser on clypeus, and sparser and smaller elsewhere, with an impunctate elevated space near each antenna. Antennae moderately long, third and fourth joints subequal. *Prothorax* more than twice as wide as long, sides evenly rounded; with irregularly distributed punctures of moderate size, becoming larger and denser, but not crowded, on sides. *Elytra* with punctures of moderate size, becoming smaller and in fairly deep striae posteriorly, in places in semi-double rows and nowhere transversely confluent. *Abdomen* with fifth segment as long as fourth, and with a median fovea. Front *femora* moderately dentate; apical half of hind tibiae gently dilated; basal joint of four front tarsi distinctly inflated. Length, 5-5½ mm.

♀. Differs in the evenly convex abdomen, hind tibiae gently and evenly increasing in width from base, and in the tarsi.

Hab.—Queensland: Dalby (Mrs. F. H. Hobler), Rockhampton (A. M. Lea). Type, I. 3276.

A small pale species, one specimen entirely without metallic lustre and the other almost without same; the tips of the antennae are missing from both. The elytral punctures are not crowded even behind the shoulders.

COLASPOIDES DODDI, n. sp.

♂. Flavous; upper-surface with a vague purplish gloss, under-surface somewhat darker than legs.

Head with fairly dense punctures of moderate size between eyes, becoming smaller and denser on clypeus and somewhat sparser elsewhere; median line fairly well defined. Second joint of antennae more than half the length of third, the latter equal to fourth. *Prothorax* about twice as wide as long, sides evenly rounded; with moderately dense and rather small punctures. *Elytra* with not very large punctures, nowhere very dense or transversely confluent, in places in semi-double rows, becoming smaller posteriorly. Flanks of *prosternum* with sparse punctures. Fourth segment of *abdomen* fully twice the length of fifth, the latter with a median impression. Front *femora* strongly dentate. Length, 3¼ mm.

Hab.—North-western Australia: Derby (W. D. Dodd). Type (unique), I. 3420.

An unusually small pale species. There are but two subsutural striae on each elytron, and the outer one of these is not very deep; it commences below the summit of the apical slope. The basal joint of each of the four front tarsi is slightly larger than is usual in females, but much smaller than is usual in males, but the abdomen is essentially masculine.

COLASPOIDES ACERVATA, n. sp.

♀. Brassy or bronzy; labrum and appendages red, tip of antennae infuscated.

Head with dense punctures of moderate size, and more or less obliquely confluent, except on clypeus, where they are slightly smaller but separately impressed; median line well defined. Antennae rather long and thin, fourth joint slightly shorter than third and fifth. *Prothorax* about thrice as wide as long, with rather dense punctures of moderate size on disc, becoming larger and crowded on sides, where many are confluent. *Elytra* with dense and coarse punctures, on apical slope in deep striae near suture, in places in feeble geminate rows, but mostly transversely rugose, the rugae more conspicuous behind shoulders than elsewhere, but traceable almost to apex. Flanks of *prosternum* with rather large and crowded punctures. Front *femora* rather strongly dentate. Length, 6½-7¼ mm.

Hab.—New South Wales: Galston (D. Dumbrell), Gosford (A. M. Lea). Type, I. 3512.

The punctures on the sides of the prothorax are unusually dense. The comparative shortness of the fourth joint of antennae, although similar in the two following species, is rather unusual, the difference between it and the adjacent ones is not very great but is readily seen.

Since the above was written I have seen three Macleay Museum specimens, of which one (labelled as from Kurrajong) is a male; it differs from the female in having the prothorax less transverse (hardly more than twice as wide as long), abdomen less convex, fourth segment much longer than the fifth, and both depressed in middle. The tarsi are all too dirty to be described, but the hind tibiae are much as on the female, except that they are somewhat stouter.

COLASPOIDES CRASSIPES, n. sp.

Pl. viii., fig. 143.

♂. Bronzy-black, parts of under-surface and of muzzle diluted with red; legs red, palpi and antennae paler, but two apical joints of the latter blackish.

Head with fairly dense punctures of moderate size between eyes, becoming denser on clypeus, subconfluent near hind margins of eyes, and smaller and sparser elsewhere. Antennae with joints proportioned as in preceding species. *Prothorax* about twice as wide as long, with fairly dense but evenly distributed punctures of moderate size. *Elytra* with dense punctures of various sizes, large and more or less transversely confluent from shoulders to beyond middle, but a few confluent almost to apex, in semi-double rows, mostly of small ones, in parts, and in two distinct subsutural striae on apical slope of each elytron. Flanks of *prosternum* with fairly large and rather dense punctures. Fourth segment of *abdomen* more than twice the length of fifth along middle, and the sides much longer, with a shallow median depression, fifth incurved to middle of apex, and with a fairly large median depression. *Legs* stout; front femora feebly dentate; hind tibiae suddenly and strongly dilated at apical third, the others rather strongly but regularly dilated to apex; basal joint of four front tarsi strongly inflated. Length, 6½ mm.

Hab.—Queensland: Somerset (C. French). Type (unique), I. 3513.

The hind tibiae are much as on *tarsalis*, and in fact the species appears to be intermediate between such species as *tarsalis* and the preceding one. The legs are unusually stout, from most directions the front femora appear to be edentate, but from certain directions a subangulate swelling may be seen to be topped by a minute tooth; this will distinguish the species from *Cleptor inermis*, to which structurally it is very close. Most of the under-surface has a greenish gloss, and in some lights the scutellum also. The general outlines are much as in the preceding species, but the punctures are very different; on the prothorax they are slightly denser on the sides than on the disc, but they are nowhere confluent; there is a vague transverse depression behind each shoulder. The median line on the head is fairly distinct only in front.

Three specimens in the Macleay Museum (from Port Denison) are possibly females of this species; one is coloured as the type, but the others are brassier; they differ in having the abdomen more convex, hind tibiae regularly dilated to apex, and in the tarsi.

COLASPOIDES PICTIPES, n. sp.

Pl. viii., fig. 162.

♂. Black with a bronzy-green gloss, becoming brassy or brassy-green on under-surface; legs red, middle of femora brassy-green, tarsi blackish, antennae testaceous, six apical joints blackish.

Head somewhat uneven between eyes, and with dense punctures of moderate size there, becoming denser on clypeus, and somewhat sparser towards base; median line rather distinct. Antennae with joints proportioned as in *acervata*. *Prothorax* with comparatively small and sparse, but clearly defined punctures. *Elytra* with feeble rows of small punctures, nowhere confluent, and of fairly large size only on an irregular post-humeral depression, only one subsutural stria on each elytron. Flanks of *prosternum* with rather large, evenly distributed punctures. Fourth segment of *abdomen* almost twice the length of the fifth along middle, and much more at sides, fifth with a curved transverse impression, somewhat inflated in middle. *Legs* stout; front femora feebly dentate, hind ones with a strong obtuse tooth; hind tibiae strongly but not suddenly dilated to apex; basal joint of four front tarsi strongly dilated. Length, 7 mm.

Hab.—Queensland: Bundaberg (A. M. Lea). Type (unique), I. 3294.

The punctures are unusually small, many of the seriate ones on the elytra could even be called minute; on the head and prothorax they are much the size of those of *parvidens*, but on the head they are much denser. The general appearance is suggestive of *Paraphanes nitidus* of the *Tenebrionidae*. The tooth on the front femora is so small that it could easily be overlooked, but the one on the hind pair (but which is probably confined to the male) is very conspicuous.

Division 3.

COLASPOIDES SIMILIS, n. sp.

Pl. vii., fig. 90; pl. viii., fig. 163.

♂. Brassy or bronzy, under-surface in parts diluted with red; legs red, labrum, palpi, and antennae paler, but four or five apical joints of the latter infuscated.

Head with crowded, rather coarse, and frequently confluent punctures between eyes, becoming still more crowded on clypeus, but sparser and seldom confluent towards base; median line well defined. Antennae moderately long, third and fourth joints subequal. *Prothorax* with rather dense but somewhat unevenly distributed punctures of moderate size, becoming larger, crowded, and sometimes confluent on sides, interspaces with minute punctures; sides gently undulated in middle. *Elytra* with dense punctures of moderate size, becoming larger, more crowded, and more or less confluent behind shoulders, but a few feebly confluent to near apex; only one subsutural stria on each elytron. Flanks of *prosternum* with rather large and crowded punctures. Fourth segment of *abdomen* along middle about once and one-half the length of fifth, the latter transversely impressed in middle. *Legs* stout; front and hind femora each with a small tooth; tibiae strongly dilated to apex; basal joint of four front tarsi rather strongly dilated. Length, 6½-7 mm.

♀. Differs in having abdomen evenly convex and simple, fifth segment slightly longer than fourth, hind femora edentate, tibiae less dilated, and in the tarsi.

Hab.—Queensland: Brisbane (Queensland Museum's No. 321, A. J. Turner and R. Illidge). Type, I. 3514.

In general appearance close to *acervata*, but sides of prothorax not the same (although quite evidently closely allied to that species, it would, by both Chapuis' and Lefevre's tables be widely separated from it), punctures on the head not quite as dense and less conspicuously confluent, but on the clypeus some of them are confluent, whereas on that species they are all free. There is usually a rather conspicuous impunctate space on the head near each eye, and on some specimens there are remnants of an impunctate median line on prothorax; the punctures on the middle of the elytra, although not in striae, appear to be in almost regular, closely placed rows, but elsewhere the lineate arrangement is less, or not at all, evident. On perfect specimens each prothoracic angle is provided with a long hair. The hind tibiae of the male of this and of the following species are triangularly notched near the lower apex, with a conspicuous tooth behind the notch; on many others of the genus there is a somewhat similar but less conspicuous notch.

COLASPOIDES PARVIDENS, n. sp.

♂. Bronzy, with a vague greenish gloss; under-surface and appendages more or less castaneous, parts of metasternum with a golden-green gloss, five apical joints of antennae infuscated.

Head with fairly dense and not very large punctures between eyes, becoming more crowded on clypeus, and much smaller and sparser elsewhere; median line well defined. Antennae rather long, third and fourth joints subequal. *Prothorax* with moderately undulated sides, with sparse and rather small but sharply defined punctures, becoming larger but not crowded on sides. *Elytra* with semi-double rows of small and rather distant punctures, of moderate size only on a post-humeral depression, only one subsutural stria on each elytron. Flanks of *prosternum* with rather large but not crowded punctures. *Abdomen* and *legs* much as on preceding species. Length, 6¾ mm.

Hab.—Queensland (Blackburn's collection, from F. M. Bailey). Type (unique), I. 3286.

In general appearance close to the preceding species, but with much sparser and finer punctures on the whole of the upper-surface, sides of prothorax more undulated, etc. In general appearance it is strikingly close to some specimens of *Cleptor xanthopus*, but sides of prothorax more undulated and front and hind femora dentate, etc.

CLEPTOR.

Although placed in the *Edusitae* (whose elytra are given as more or less evidently transversely rugose) the elytra of this genus were described as "vix perspicue rugosa." Blackburn (*ante*, 1900, p. 167) has commented upon the extreme closeness of the genus to *Colaspoides*, and has referred to it *Colaspis xanthopus*. I have identified, with some doubt, *Colaspis australis*, which also appears to belong to the genus. It is doubtful if the genus can be maintained as distinct from *Colaspoides*, but, nevertheless, I venture to here treat it as distinct, and to split it up into several divisions, each with definite structural features (but of doubtful importance). Some of the divisions might very well be regarded as belonging to *Colaspoides*, but at least it is probable that future workers will be able to recognize them. Quite possibly also some of them might be regarded as belonging to *Edusa* (to which genus several species with entirely glabrous upper-surface have been referred). In all the species the second joint of the antennae is always distinctly shorter than the third. They are nearly all brightly metallic, greatly variable, and of small or medium size. The tibiae are usually supplied with conspicuous ridges or carinae; of these there are usually several on the sides and two on the supper-surface, extending from the base, or near same, to apex, gradually becoming more distant till at the apex they are rather wide apart, and a notch appears in which the base of the tarsus can rest; the ridges, with the accompanying channel, are usually more distinct on the middle pair or on the two hind pairs than on the front ones. The sexes differ in the apical segment of abdomen, in the tarsi, and usually in the tibiae.

Div. 1.—Upper-surface glabrous. Eyes entire or almost so. Prothorax with margins not dentate or subdentate about middle, and at base scarcely, if at all, narrower than base of elytra. Femora edentate; tibiae longitudinally canaliculate, and not notched near outer apex; claws appendiculate.

Div. 2.—With the specified characters of *Div. 1*, except that the tibiae are not longitudinally canaliculate.

Div. 3.—With the specified characters of *Div. 1*, except that the front femora are dentate; the tooth itself is sometimes small, but in such cases the femur itself is distinctly angulate.

Div. 4.—With the specified characters of *Div. 1*, except that the front femora are dentate, and that the tibiae are not longitudinally canaliculate.

Div. 5.—With the specified characters of *Div. 1*, except that the front femora are dentate, the tibiae not longitudinally canaliculate, and that the eyes are notched.

Rufimanus and *haroldi* were not included in the following table as their positions could not be definitely assigned without knowing the males; they certainly, however, belong to *cc*:—

A. Front femora edentate.

a. Middle tibiae not longitudinally canaliculate.

* Head and prothorax flavous, not metallic *semiviridis*

** Head and prothorax metallic.

b. Prothorax shagreened and with minute punctures.

* Clypeus with fairly well-defined punctures ... ... *globulus*

** Clypeus without such ... ... *tersus*

bb. Prothorax scarcely or not at all shagreened, and with distinct punctures.

* Knees not at all infuscated ... ... *bigener*

** Knees conspicuously infuscated ... *minutus*

aa. Middle tibiae longitudinally canaliculate.

c. Size minute ... ... *caeruleus*

cc. Size larger.

d. Flanks of prosternum with conspicuous striae ... ... *striatipectus*

dd. Flanks with neither conspicuous striae nor punctures on apical half ... ... *multicolor*

ddd. Flanks with conspicuous punctures.

e. Under-surface of hind tibiae of male incurved near apex ... ... *inermis* (?)

ee. Under-surface of hind tibiae not so incurved ... ... *subhumeralis*

AA. Front femora dentate.

B. Middle tibiae not canaliculate.

f. Punctures on head subequal to those of prothorax ... ... *minor*

ff. Punctures on head larger than on prothorax.

g. Eyes feebly notched ... ... *coriaceus*

gg. Eyes strongly notched ... ... *goudiei*

BB. Middle tibiae canaliculate.

C. Prothorax reddish, not metallic ... ... *chloropterus*

CC. Prothorax metallic.

D. Sides of prothorax with crowded conspicuous punctures.

h. Punctures at sides of prothorax much smaller than the adjacent ones on elytra ... ... *pallidiventris*

hh. Punctures there scarcely smaller than the adjacent ones on elytra *apicistriatus*

DD. Sides of prothorax with sparse and usually very small punctures.

E. Few, if any, punctures transversely confluent behind shoulders ... ... *laevicollis*

EE. Many elytral punctures confluent behind shoulders.

F. Punctures much denser on clypeus than on vertex ... ... *simplicipennis*

FF. Punctures alike on clypeus and vertex ... ... *electus*

Division 1.

CLEPTOR INERMIS, Lef.

(?) *Colaspoides australis*, Jac.
(?) *Colaspoides xanthopus*, Har.
Pl. viii., fig. 144.

The sexual characters of *inermis*, the typical species of *Cleptor*, were not mentioned. There are in the Museum the three specimens previously commented upon by Blackburn, and bearing labels as follows: —

1. "Queensland," "99," "*Cleptor inermis*, named by Jacoby."
2. "Austral Damel," "106," "*Colasp. xanthopus*, named by Jacoby"; "*Xanthopus*, Har."
3. "Sidney," (90) "Coll. Chapuis," "*Neotaxis fulgida*, Lefevre-Chapuis."

Of these the first two are bronzy females, and agree perfectly in all structural details, but the second specimen has the margins of the elytra bluish and of the prothorax greenish, its legs are reddish, with the tarsi infuscated; on the first specimen the prothorax and elytra are of uniform colour throughout, and the legs are entirely red; those of the type were described as "nigro-brunneis." The third specimen is certainly, I think, conspecific with the others, but is a male and more brightly metallic (golden-red with greenish reflections, the margins as on the second specimen), with blackish legs having a metallic blue gloss, but the tarsi infuscated only; the apical segment of its abdomen is irregularly depressed in the middle, the hind tibiae (fig. 144) are curiously shaped at the apex, and the basal joint of each of the four front tarsi is distinctly inflated. Two other males (from Mackay) agree well with the third specimen, but tend more to a purplish-bronze, with margins violet (on one of them the prothoracic margins are green), the legs (except the tarsi) are also dark. Another male was labelled "*Platymela* (?) *sapphira*, Boisd.,"(91) in Blackburn's collection; it is of a vivid-green, with violet margins and under-surface, and dark legs (tarsi and knees paler). There are also numerous specimens in the Macleay Museum, from Rockhampton and Dawson River, and varying in colour from brassy to deep-purple. All the specimens have the flanks of the prosternum with numerous sharply defined punctures, and non-striate except close to the coxae; the latter character alone is sufficient to distinguish them from *multicolor* and *striatipectus*.

---

(90) The locality is almost certainly wrong.

(91) It is not *Chrysomela fulvilabris*, Germ., of which *C. sapphira*, Fab. (Boisd.), is supposed to be a synonym, as that species certainly belongs to the *Chrysomelides*.

The description of *xanthopus* is insufficient for its positive identification, as the sexual features are not noted; if varietal, it has precedence of *inermis*, in which case the red-legged form should be known as *xanthopus* and the dark-legged one as var. *inermis*. The description of *Colaspoides australis* also agrees fairly well with specimens of this species, but here again the essential sexual features were not mentioned. In the short diagnosis the legs were described as fulvous, but in the lengthier description they were stated to be piceous or dark fulvous; if *australis* should also prove to be synonymous it would appear that Jacoby had specimens of both the typical form and of the variety.

CLEPTOR RUFIMANUS, Lef.

In the original description of this species the legs (except as to their colour) and abdomen were not even mentioned, and as it evidently belongs to a section of the genus whose species are most readily identified by the male tibiae, it seems inadvisable to positively identify any species as *rufimanus*, without comparison with the type, unless the same happens to be a male, and its sexual features are noted; it is desirable also that the sculpture of the flanks of its prosternum should be noted.

There are, however, five females before me, of which two (mounted together) from the Blackburn collection bear labels as follows:—"N. Austral.," "*Cleptor rufimanus*, by Jacoby," "*rufimanus*, Lef."; and these specimens have the prothoracic punctures, apparently the most distinctive characters of the species, as described. The others are from Mackay, Cairns, and Somerset. I have seen no males that could be confidently associated with them.

CLEPTOR HAROLDI, Blackb.

Of this species the legs (except as to their colour) and abdomen were not even mentioned. The type is now in the British Museum; in the collection of the late Rev. T. Blackburn it was represented by a label only. Possibly two females in the Museum (from Cairns), one purplish-blue, the other brassy, may belong to the species; but as the essential sexual features were not mentioned it is quite impossible to identify the species with certainty from the original description.

CLEPTOR MULTICOLOR, n. sp.

♂. Of variable colours.

Head with fairly numerous but rather small punctures, denser between eyes than elsewhere; median line well defined in front, but becoming feeble or absent about base. *Prothorax* with rather strongly and evenly rounded sides, base much wider than apex; with scattered punctures of moderate size. *Elytra* with irregular rows of rather small and distant punctures, becoming smaller and more distant posteriorly, and larger and denser (but not very dense) just behind the shoulders; apical slope with subsutural stria only distinct, but with feeble remnants of others. Flanks of *prosternum* without punctures, and without striation on most or all of the surface. Fifth segment of *abdomen* with a small distinct fovea. *Femora* edentate; tibiae conspicuously ridged, regularly increasing in width to apex; basal joint of four front tarsi distinctly inflated. Length, 3½-6 mm.

♀. Differs in having the abdomen more convex, without fovea, tibiae somewhat thinner, and in the tarsi.

Hab.—Northern Queensland (Blackburn's collection), Cairns district (E. Allen, F. P. Dodd, A. M. Lea). Type, I. 3293.

The comparatively sparse prothoracic punctures render it certain that this species is not *inermis*, *xanthopus*, *australis*, *rufimanus*, or *haroldi*, the flanks of the prosternum with neither conspicuous striae nor punctures also readily distinguish it from those species, and the hind tibiae of the male are conspicuously different from those of the species that appear to be *inermis*. It is an abundant species, very variable in colour and size, but readily distinguished by the prosternum and tibiae. The commonest form of the species has the elytra more or less purplish, with the head, prothorax (the margins usually excepted), and under-surface brassy-green or bluish, and the labrum, front of clypeus, and the appendages more or less reddish, but with part of the antennae infuscated. But the elytra are frequently brassy at the sides, or entirely brassy, or brassy-green, or steel-blue, or bronzy; the head and prothorax nearly always have a greenish or brassy-green gloss, except that the margins are usually violet or deep-blue; but even when conspicuously green they frequently have a purplish gloss in places. Sometimes only the apical joint of antennae is infuscated, and sometimes only the five basal joints are entirely pale; usually the tip of the abdomen is obscurely diluted with red; the legs are occasionally deeply infuscated, the tarsi less noticeably so than the other parts. On many specimens the flanks of the prosternum are entirely non-striated; but on others striae are visible on the sides from about the middle to the base; they are usually rather distinct, but vary through various degrees of intensity till they altogether vanish; punctures, however, appear to be always absent, but on the episterna they are numerous, but the episterna themselves, being separated by deep sutures from the flanks, no confusion should arise from same. On the smallest specimens the punctures on the pronotum are sparse and rather small, on the largest ones they are distinctly larger and more numerous, although by no means dense; the punctures on the head and elytra also differ somewhat in size, but there are so many intermediate forms in the Museum that I cannot believe these differences to be more than individual. The elytra are not transversely depressed behind the shoulders, but the punctures there are larger than elsewhere, although even on the largest specimens they are not transversely confluent. The elytral striation on this, as on most species of the genus, is practically confined to a subsutural stria on the apical slope of each elytron; on the apical slope rows of small punctures are fairly distinct, but the striae in which they are set are so feeble that without the punctures they could be easily overlooked.

CLEPTOR SUBHUMERALIS, n. sp.

Pl. viii., fig. 145.

♂. Brassy or bronzy; labrum and appendages more or less reddish, but antennae infuscated about apex.

Head irregularly depressed between eyes, median line distinct; with numerous sharply defined, but not very large punctures, absent from a small space near each antennae, and denser on clypeus than elsewhere. *Prothorax* with sides obliquely diminishing in width from base to near apex, but with front angles rounded; with dense punctures of moderate size and frequently suboblong, rather sparser (but still fairly dense) on middle than elsewhere, with very small punctures scattered about. *Elytra* with numerous rather irregular (in places semi-double) rows of punctures, of rather small size towards suture and posteriorly, and larger (but not confluent) behind shoulders (the shoulders themselves impunctate) than elsewhere; apical slope of each elytron with a well defined subsutural stria, and with feeble remnants of others. Flanks of *prosternum* with rather dense and fairly large punctures. Fifth segment of *abdomen* with a shallow median depression. *Femora* edentate; tibiae conspicuously ridged, front ones almost evenly dilated to apex; basal joint of four front tarsi inflated. Length, 5-6 mm.

♀. Differs in having the abdomen more strongly and evenly convex, tibiae thinner, and in the tarsi.

Hab.—Queensland: Somerset (C. French). Type, I. 3576.

One male has the prothorax with a conspicuous greenish gloss, on another it is almost of a golden-red, but the colour varies to a certain extent with the point of view. The margin of each elytron (as seen from the side) appears to slope rapidly downwards to about the basal fourth, then to be rather strongly rounded, and then to be very gently arcuate to the apex; in consequence there appears to be a rather conspicuous post-humeral swelling; somewhat similar, but less pronounced, swellings are to be seen on most species of the genus.

CLEPTOR STRIATIPECTUS, n. sp.

♂. Brassy-green or bluish-green; labrum and appendages reddish, tip of antennae infuscated.

Head shallowly depressed between eyes, median line distinct; with sharply defined punctures of moderate size, but not quite evenly distributed. Flanks of *prosternum* conspicuously but irregularly striated and impunctate. Fifth segment of *abdomen* with a wide, shallow, irregular depression. *Femora* edentate; tibiae with conspicuous ridges, the hind pair strongly dilated near apex; basal joint of four front tarsi strongly inflated. Length, 4½-5¼ mm.

♀. Differs in having the hind tibiae regularly increasing in width to apex, and in the tarsi and abdomen.

Hab.—Queensland: Dalby (Mrs. F. H. Hobler), Brisbane (A. J. Turner). Type, I. 3577.

In general appearance close to the preceding species and to those herein commented upon as *inermis*, *rufimanus*, and *haroldi*, but readily distinguished by the flanks of the prosternum; these are conspicuously impressed throughout with oblique, longitudinal, or transverse striae, and are entirely without punctures, although on the episterna the latter are dense. There are seven specimens of the species before me, and two of these have the sculpture of the pronotum and elytra exactly as described in the preceding species, except that on the apical slope of each elytron there is an additional distinct stria adjacent to the subsutural one, and that the post-humeral swellings are less conspicuous, these differences being common to the seven; but two of them have the prothoracic punctures smaller and more rounded, and the elytral punctures smaller; on two others the prothoracic punctures are much as on that species, but the elytral ones are distinctly larger and many are transversely confluent; the other (a female) has still larger punctures, of which many are confluent, even on the apical slope, where also the striae are more numerous and well defined. One female has most of the body parts brassy, with the elytra verging to brassy-purple.

CLEPTOR CAERULEUS, n. sp.

♂. Deep-blue, head with a greenish gloss, under-surface and legs black, but parts of the latter obscurely diluted with red; palpi and antennae partly reddish.

Head with fairly numerous and sharply defined but not very large punctures, denser on clypeus than elsewhere. *Prothorax* with rather strongly rounded sides, angles obtusely armed: with fairly dense and not very large punctures on disc, becoming suboblong and rather crowded on sides. *Elytra* with numerous almost regular rows of rather small punctures, of almost even size throughout, except that they are fairly large behind the shoulders; striation rather strong on apical slope. Flanks of *prosternum* with numerous strong punctures, except close to outer margin. Metasternum with dense and fairly large punctures. Fifth segment of *abdomen* with a feeble median depression. *Femora* edentate; tibiae with strong ridges, almost evenly dilated to apex; basal joint of four front tarsi inflated. Length (♂, ♀), 2-2¾ mm.

♀. Differs in having somewhat thinner tibiae, and in the abdomen and tarsi.

Hab.—Queensland: Kuranda (H. Hacker and H. J. Carter, from G. E. Bryant). Type, I. 3578.

A small deep-blue species, not very close to any other known one; the shoulders have a vague coppery gloss. The male has a rather distinct median line on the head, but on the female it is scarcely traceable. Partly owing to its punctures, and partly to the impunctate spaces adjacent to the antennae, the clypeus appears to be subtriangularly depressed.

Division 2.

CLEPTOR GLOBULUS, n. sp.

Brassy, in places with a slight greenish gloss; appendages reddish, tip of antennae infuscated.

Head with crowded punctures of moderate size; median line shallow. *Prothorax* with sides feebly rounded but rather strongly diminishing in width from base to apex; shagreened and minutely punctate. *Elytra* almost as wide as long; with dense punctures of moderate size, smaller towards suture and larger behind shoulders than elsewhere. *Abdomen* convex; fifth segment with dense and fairly large punctures. Length, 2¾ mm.

Hab.—Western Australia: Kalgoorlie (F. H. du Boulay). Type (unique), I. 3419.

A small, compact species, at first glance suggestive of *Ditropidus*, but with the pygidium concealed. The type appears to be a female, as the fifth segment of its abdomen is without a depression, and the basal joint of no tarsus is distinctly inflated. The shagreening of the prothorax causes the same to appear less polished than the scutellum and elytra. The elytral punctures are mostly in rows, some of which are geminate; on the apical slope the striation is distinct towards the suture, and the punctures are quite as large as on the sides (except close to the shoulders) and larger than towards the suture. The flanks of the prosternum in places have distinct punctures, and in others striae, but elsewhere are quite smooth. The tibiae are not longitudinally ridged and canaliculate, but each of the four hind ones has a feeble apical notch in which it is possible for the base of the tarsus to rest; also near the outer apex each is feebly incurved, but not conspicuously notched as in *Rhyparida*.

CLEPTOR BIGENER, n. sp.

Of a vivid-green; labrum and appendages reddish, tip of antennae infuscated.

Head with crowded punctures of moderate size; a shallow depression between eyes, median line feeble but traceable to base. *Prothorax* with sides obliquely decreasing in width from base to near apex; with dense small punctures, becoming crowded and suboblong on sides, the interspaces with minute punctures. *Scutellum* with dense, small punctures. *Elytra* suboblong; with fairly dense punctures of moderate size, rather smaller towards suture, and larger behind shoulders than elsewhere; apical slope with distinct striae only near suture and sides. Flanks of *prosternum* with numerous distinct but not very large punctures. Fifth segment of *abdomen* shallowly depressed in middle, and with numerous punctures. *Femora* edentate; tibiae regularly increasing in width to apex, and not longitudinally canaliculate; basal joint of front tarsi rather lightly dilated. Length, 3 mm.

Hab.—New South Wales: Whitton (A. M. Lea). Type (unique), I. 3579.

Although the non-canaliculation of the tibiae associates this with the preceding species, it has but little in common with it. In fact, it, *pallidiventris*, and *electus* appear in some respects (strikingly so in colours) to be close to *Edusa podagrosa*, *flavipes*, *metallica*, and *chlorophana*, nor am I at all certain but that they should be generically associated with those species. The prothorax appears to be feebly shagreened, but this is almost solely due to the minute punctures scattered amongst the larger (but still small) ones. The depression on the apical segment of the abdomen is so slight, and the front tarsi are so feebly dilated, that I am doubtful as to the sex of the type.

CLEPTOR SEMIVIRIDIS, n. sp.

Pl. viii., fig. 146.

♂. Flavous; scutellum, elytra, and metasternum metallic-green, abdomen almost black, its tip diluted with red.

Head with crowded asperate punctures of moderate size, becoming smaller towards base and very small on front of clypeus; with several very feeble depressions. Eyes rather large. *Prothorax* about thrice as wide as long; with rather dense subasperate punctures of moderate size, becoming larger and crowded on sides, the interspaces with minute punctures. *Scutellum* with small, dense punctures. *Elytra* not much wider than prothorax; with rather dense and fairly large punctures, larger behind shoulders than elsewhere, about middle in subgeminate rows, and towards suture on apical slope confined to distinct striae. Flanks of *prosternum* lightly striated, and with scattered distinct punctures. Fifth segment of *abdomen* depressed in middle. *Femora* edentate; tibiae not longitudinally canaliculate, the hind ones rather suddenly dilated about apex. Length, 3¼ mm.

Hab.—Queensland: Gayndah (A. M. Lea). Type (unique), I. 3618.

I had this species associated with *Eucolaspis tricolor*, ready to be described, before noticing that it was congeneric with *Cleptor chloropterus;* the three species, in fact, are very similar in appearance; but the present differs from the latter species in its much larger eyes, larger and denser punctures, unarmed front femora, and very different tibiae; from *tricolor* it differs in its much larger eyes, head with much denser punctures, and in the tibiae. The four hind tibiae are feebly incurved near the outer apex, but not distinctly notched as in *Rhyparida*, nor are the elytral punctures, a few of which are transversely confluent, as on any species of that genus.

CLEPTOR MINUTUS, n. sp.

♂. Metallic-green, in places with a slight coppery gloss; under-surface almost entirely coppery, labrum blackish, appendages reddish, in parts infuscated.

Head with fairly dense, sharply defined punctures of moderate size; clypeus very short, lateral sutures feeble, the hind one obsolete; labrum very short. Antennae comparatively short, second joint almost as long as first, and distinctly longer than third, five apical joints rather wide. *Prothorax* scarcely twice as wide as the median length, sides rather strongly rounded, with dense punctures of moderate size, smaller in middle than elsewhere. *Elytra* not much wider than prothorax; with fairly dense subasperate punctures of moderate size, larger behind shoulders than elsewhere, and many transversely confluent there, in places in feeble subgeminate rows, interspaces with minute punctures; apical slope with distinct striae only towards suture and sides. Flanks of *prosternum* with numerous distinct punctures. Fifth segment of *abdomen* with a small but distinct apical fovea. *Femora* stout, edentate; tibiae not longitudinally canaliculate; basal joint of four front tarsi inflated. Length, 2¼-2½ mm.

♀. Differs in having the upper-surface entirely brassy, abdomen more convex and non-foveate, and in the tarsi.

Hab.—Western Australia: King George Sound (British Museum, from C. Darwin, and Macleay Museum), Karridale, Swan River (A. M. Lea). Type, I. 3648.

A minute insect, in general appearance very close to *Rhinobolus nitidus*, but differing very considerably in the clypeus and labrum; these were regarded by Blackburn as the most characteristic features of the genus; both sexes also are very similar to those of *Edusoides pulcher*, but the tibiae are without the conspicuous apical process of that species, and the elytra are entirely glabrous; on the whole it appears better to refer the species to *Cleptor* rather than to any other, as I am averse to proposing a new one for its reception; the comparatively long second joint of antennae is aberrant. In the table, although associated with *bigener*, it is really not very close to that species. The dark parts of the appendages are the apical joint of each palpus, parts of the basal and of the six (or less) apical joints of antennae, the claw joints, and the knees; but the knees also have a metallic green gloss. The male in the Macleay Museum has the scutellum conspicuously brassy, but on the type it is green. The type female has the abdomen malformed, as the fourth segment, although normal on the right side, is suddenly pinched out before it reaches the left side, its place there being taken by an enlarged portion of the third segment.

CLEPTOR TERSUS, n. sp.

♂. Bright metallic-green; labrum and appendages flavous.

Head flat between eyes; shagreened and with dense and rather small asperate punctures; clypeus elongate, shagreened and impunctate; labrum very short. *Prothorax* about twice as wide as median length, sides lightly rounded; shagreened and densely and minutely punctate. *Elytra* very little wider than prothorax, with fairly dense punctures of moderate size, larger behind shoulders than elsewhere, the interspaces with rather dense minute ones; apical slope lightly striate. Flanks of *prosternum* finely striate, and with some scattered punctures. *Femora* edentate; tibiae not longitudinally canaliculate, basal joint of four front tarsi rather lightly inflated. Length, 2½ mm.

Hab.—Western Australia. Type (unique), in Macleay Museum.

Allied to *globulus*, but (apart from the—possibly sexual—differences in colour) distinctly narrower, elytra with larger punctures, many of which are transversely confluent behind the shoulders; the four hind tibiae are feebly incurved near the outer apex, as on that species. On the type not even the tip of the antennae is dark. The fifth segment of the abdomen from most directions appears to be flattened in middle, but from others a vague median depression may be seen. The tip of the apical joint of each palpus is narrower than the middle of the same, but is truncated.

Division 3.

CLEPTOR LAEVICOLLIS, n. sp.

Pl. vii., fig. 91; pl. viii., figs. 147 and 148.

♂. Of variable colours.

Head with fairly dense punctures of moderate or rather small size and well defined, a few confluent; median line usually well defined. *Prothorax* with sides rather rapidly obliquely decreasing in width from base to apex, all angles produced and acute; with sparse and small punctures. *Elytra* with more or less irregular rows of moderately large punctures, becoming smaller posteriorly, and larger behind shoulders than elsewhere; striation on apical slope distinct near suture and sides. Flanks of *prosternum* lightly striated in places, but elsewhere quite smooth. Fifth segment of *abdomen* lightly transversely impressed, and with a small median fovea. *Femora* stout, the front pair lightly dentate; tibiae rather strongly dilated to apex and with conspicuous ridges, the front pair notched at outer apex; basal joint of four front tarsi rather strongly inflated. Length, 4-5 mm.

♀. Differs in having the abdomen more convex, non-foveate, tibiae less stout, and in the tarsi.

Hab.—Northern Queensland (Blackburn's collection and E. W. Ferguson), Coen and Stewart Rivers (W. D. Dodd), Cooktown (H. J. Carter). Type, I. 3298.

In some respects agrees fairly well with *Colaspoides simplicipennis*, but with the front femora dentate, the tooth, although small and invisible from certain directions, is fairly distinct from others, as it crowns a subangulate inflation. In general appearance close to *multicolor*, and like that species extremely variable, but readily distinguished by the dentate front femora, and different prothoracic punctures; these are usually very small, and could be easily overlooked; on some specimens, however, they are fairly distinct, although not of even moderate size. The elytral punctures are also variable in size and density, so that on some specimens they could be regarded as rather small, even behind the shoulders, whereas on others they are rather coarse there, but on none do they appear to be distinctly confluent. The most abundant form is of a more or less brassy-green or brassy-blue, but specimens vary from a vivid-green to deep-purple, or even black, with but a slight bluish gloss; the brightly-green specimens as a rule are males, and the purple ones females, but the brassy, brassy-purple, and blue ones may belong to either sex. The appendages are reddish, sometimes almost flavous, but with antennae partly infuscated, the infuscation varying from only the tip of the eleventh joint to the whole of the five apical ones; the legs are occasionally deeply infuscated.

Some specimens from Cairns (Macleay Museum), Mackay (R. E. Turner), and the Endeavour River (C. French) appear to belong to this species, but have the prothoracic punctures rather more conspicuous, although small; they vary in colour in similar ways and the sexual differences are the same, so I presume they represent but a variety.

CLEPTOR CHLOROPTERUS, n. sp.

♂. Flavous-red; elytra brassy-green.

Head with rather numerous well defined but rather small punctures, more distinct between eyes than elsewhere; median line feeble in front, and disappearing before base. *Prothorax* with strongly rounded sides; with a few scattered and rather small punctures. *Elytra* with fairly large and irregular punctures on basal third, becoming lineate in arrangement and smaller posteriorly; with a deep subsutural stria on apical slope of each elytron, and with remnants of others. Flanks of *prosternum* without punctures or striae. Fifth segment of *abdomen* depressed across middle, and with a feeble central fovea. *Femora* stout, front pair angulate and dentate; tibiae with distinct ridges, dilated to and notched at apex; basal joint of four front tarsi distinctly dilated. Length, 3 mm.

Hab.—Queensland: Cairns district (A. M. Lea). Type (unique), I. 3580.

The reddish head and prothorax readily distinguish from other species of the genus; the absence of notches from near the outer apex of the four hind tibiae is evidence that the species should not be referred to *Rhyparida.* The prothoracic punctures, although not large, are sharply defined.

CLEPTOR APICISTRIATUS, n. sp.

Black, with a slight bronzy gloss; labrum, palpi (tips excepted), five basal joints of antennae, and base of each of the others, more or less reddish, legs deeply infuscated.

Head shallowly depressed between eyes, median line absent; punctures of rather small size, but sharply defined and somewhat unevenly distributed. Eyes comparatively large. *Prothorax* with strongly rounded sides; punctures on disc small and rather sparse, but becoming coarse and crowded on sides. *Elytra* with irregular punctures; apical slope strongly and almost regularly striated. Flanks of *prosternum* with distinct punctures, episterna striated. *Femora* moderately stout, front pair lightly dentate; tibiae rather lightly dilated to apex, with distinct ridges, less conspicuous on the front pair than on the others. Length, 4½ mm.

Hab.—Queensland: Gayndah (A. M. Lea). Type (unique), I. 3581.

The tarsi of the type appear to be feminine, as the basal joint is alike in all, but the abdomen is so irregularly contracted (perhaps from immaturity) that its sculpture cannot be given. The differences in size and density between the punctures on the sides and on the disc of the prothorax are much more pronounced than is usual in the subfamily. On the elytra, behind the shoulders, the punctures are rather dense and coarse, and exhibit a tendency to become confluent, on the apical slope they are confined to the striae, elsewhere they are small, or at most of moderate size, and are in more or less irregular (usually subgeminate) rows.

CLEPTOR PALLIDIVENTRIS, n. sp.

♂. Metallic-green; labrum and appendages more or less reddish, tips of five apical joints of antennae infuscated.

Head with fairly dense, sharply defined punctures of moderate size. *Prothorax* with sides strongly rounded, and all angles armed; with very dense punctures of moderate size, rather less crowded on disc than elsewhere. *Elytra* with fairly dense punctures of moderate size, becoming larger behind shoulders and smaller towards suture than elsewhere, mostly more or less seriate (or geminate) in arrangement; striation of apical slope rather conspicuous. *Prosternum* densely punctate throughout. Fifth segment of *abdomen* with a conspicuous median depression. Front femora distinctly dentate; tibiae with conspicuous ridges, rather strongly but evenly dilated to apex; basal joint of four front tarsi strongly dilated. Length, 3½ mm.

Hab.—Queensland: Brisbane (A. J. Turner). Type, I. 3582.

Two females that appear to belong to the species differ from the type in being larger (4 mm.), of an almost purplish-bronze, but appearing black in parts, and with the margins bluish or greenish; they have a well defined median line on the head, especially towards the base, but on the type the head is without such; they differ also in the usual sexual features of the abdomen and legs. The front of the prosternum on all three specimens is metallic-green, but the colour regularly alters till the tip of the abdomen is scarcely darker than the legs, and is entirely without metallic gloss. The femoral tooth is not large, but is very conspicuous from certain directions.

CLEPTOR ELECTUS, n. sp.

Pl. vii., fig. 92.

♂. Bright brassy-green; abdomen brassy, labrum and appendages reddish-flavous, but apical joint of antennae almost entirely infuscated.

Head with rather dense, sharply defined punctures of moderate size, becoming confluent near eyes, and absent from a small space near each antenna; median line rather distinct. *Prothorax* with sides oblique on basal half and then rounded to apex; with not very dense punctures of small or moderate size. *Elytra* with fairly large punctures, becoming lineate in arrangement and somewhat smaller towards suture, and larger behind shoulders, whence, almost to middle of apical slope, many are transversely confluent; apical slope with well defined and regular striae, except in middle. Flanks of *prosternum* with moderately distinct, but not dense, punctures and striae. Fifth segment of *abdomen* shallowly depressed in middle. *Femora* stout, front pair lightly dentate; tibiae with fairly strong ridges, hind pair less dilated at apex than the others; basal joint of four front tarsi strongly inflated. Length, 3⅔ mm.

Hab.—Queensland: Coen River (W. D. Dodd). Type (unique), I. 3583.

A very beautiful species. The prothoracic punctures, although not very large, are sharply defined, and are no denser (if as dense) on the sides than on the disc.

CLEPTOR SIMPLICIPENNIS, Jac. (formerly *Colaspis*).

A female of this species, sent for examination by Mr. Arrow (it is probably a co-type, as it is labelled "Somerset, D'Albertis"), in general appearance is very close to *electus*, but it differs from the type of that species in being somewhat larger, head with much smaller and sparser punctures, prothorax with sparser punctures, and elytra with distinctly sparser and smaller ones, fewer of the larger ones of which are transversely confluent. Its eyes are feebly notched (almost as feebly as in *electus*), and I consider it congeneric with that species. Jacoby described the femora as unarmed, but the front ones are each armed with a small tooth, although this is invisible from most directions.

Division 4.

CLEPTOR PARADOXUS, Blackb. (formerly *Tomyris*).

Tomyris minor, Blackb.

Pl. viii., figs. 149 and 150.

Specimens of *paradoxus* and *minor*, from the collection of the late Rev. T. Blackburn, are in the Museum. They bear his respective numbers, 1262 and 1263, and were both from Port Lincoln. They appear to belong to but one species, the former the female, the latter the male. In the table he gave of *Tomyris* they were separated by the head being coppery in *paradoxus* and bright-green in *minor;* but such differences in the subfamily are common in the sexes, or even individuals, of the majority of metallic species.

They were referred with doubt to *Tomyris;* the tibiae of *paradoxus* being described as "intermediis leviter, posticis vix perspicue, emarginatis," and "Its tibiae—although their external emargination is very feeble—are those of *Tomyris.*" Of *minor* he wrote, "The external emargination of the intermediate and hind tarsi (92) is a little stronger." But I cannot consider them at all notched in the way that those of *Tomyris* and *Rhyparida* are. The outer apex of each of the four hind tibiae is slightly dilated, and in consequence the space before it is slightly curved, but the curved portion is not bounded behind by a raised space (frequently dentiform), but runs on to the general line of the tibia, as in the majority of genera; moreover, the sloping apex has a tarsal groove. The complete absence of clothing from the upper-surface, although in itself not perhaps warranting generic separation, would be aberrant in *Tomyris.* I consider the species to be certainly congeneric with *Cleptor inermis.*

CLEPTOR CORIACEUS, n. sp.

♂. Coppery-green and finely shagreened; apical half of abdomen brassy, labrum and appendages flavous, tip of antennae infuscated.

Head with small and not very dense but fairly distinct punctures, median line feeble; clypeus rather longer than usual, and conspicuously notched in front. *Prothorax* with sides conspicuously oblique from base almost to apex; with minute punctures. *Elytra* with feeble rows of small and distant punctures, not very large even behind the shoulders; apical slope without distinct striae. Flanks of *prosternum*

---

(92) Certainly in error for tibiae.

without punctures, and with but feeble remnants of striation. Fifth segment of *abdomen* with a rather large median fovea. Front *femora* feebly dentate; tibiae not longitudinally canaliculate, the front pair inflated towards apex and subtriangularly notched at outer apex, the others less dilated to apex; basal joint of front tarsi strongly inflated and elongate, of the middle pair less strongly but still conspicuously inflated. Length, 3½ mm.

♀. Differs in being of a golden colour, with slight greenish reflections in places, in the abdomen more strongly and evenly convex, somewhat thinner tibiae, and in the tarsi.

Hab.—Northern Territory: Darwin (H. H. D. Griffith). Type, I. 3584.

The angulation of the front femora is very distinct, but the tooth crowning the same is very feeble. There is a curious black line on the under-surface of the middle tibiae of the male, but owing to its position it is entirely concealed from most directions. The basal joint of the front tarsi of the male is unusually large; on the female also the basal joint of the four front ones is distinctly larger than is usual on females. The basal segment of the abdomen of the male has some rather conspicuous punctures on each side of the middle, the middle itself being impunctate and slightly produced at the apex; it has also some long hairs.

Division 5.

CLEPTOR GOUDIEI, n. sp.

♀. Coppery-green and finely shagreened; abdomen golden-red, labrum and appendages flavous, tip of antennae infuscated.

Head with fairly dense punctures of moderate size, median line fairly distinct; clypeus distinctly longer than usual, separated from face by a shallow depression, finely strigose, and without distinct punctures, strongly notched in front. Eyes distinctly notched near antennae. *Prothorax* more than thrice as wide as the median length, sides strongly diminishing in width from base to apex, but rather feebly rounded; with minute punctures. *Elytra* not much longer than wide, with numerous small punctures mostly in very feeble series, but becoming larger (although not very large) behind the shoulders and on part of the apical slope, the latter with remnants of striation. Flanks of *prosternum* with dense and irregular striae, and some scattered punctures. Front *femora* lightly dentate. Length, 4¼-4½ mm.

Hab.—Victoria: Sea Lake (J. C. Goudie). Type, I. 3585.

An unusually wide species, with all the body parts shagreened; it is one of the most beautiful of the subfamily, hence I have described it, despite the fact that there are but two females under examination. Except for its much greater width, it is much like the male of the preceding species, which is also shagreened and with an elongate clypeus, but the eyes are more conspicuously notched, the punctures on the head are considerably larger, and are not continued on to the clypeus. From certain directions each shoulder appears like a large, obtuse, impunctate tubercle.

EUCOLASPIS, n. g.

Eyes lateral, prominent, almost entire, facets of moderate size. Clypeus widely transverse, not distinctly separated from head. Labrum very short. Antennae rather long and thin. *Prothorax* widely transverse, sides evenly rounded in middle. *Scutellum* small. *Elytra* decidedly wider than prothorax. *Prosternum* with medisternum rather narrow; episterna very short, front margin of each oblique. Metasternum about as long as following segment. *Legs* of moderate length and not very stout; femora edentate, or very feebly dentate; tibiae feebly dilated to apex, not longitudinally canaliculate, and not notched near outer apex; claws each with a large basal appendix.

The genus is close to *Cleptor*, but differs in the elytra being considerably wider than the prothorax, and in the much narrower medisternum (only about half the width of that of species of *Cleptor)*. From *Rhyparida* it is at once distinguished by the tibiae. On the female of *tricolor* the tibiae are gently and quite evenly dilated to the apex, with the apex itself not suddenly inflated; on the male the four hind ones are each produced at the outer apex, but there is not a distinct notch before same. On the female of *tranquilla* (the only sex at present known) they are as on the female of *tricolor;* its front femora at first appear to be edentate, but from one direction a vague tooth certainly appears to be present on each, but it is very feeble; at its position there is a feeble groove, and the tooth seems to mark one side of the groove and not to be elevated above the general surface. The evenly rounded outline of each eye is slightly interrupted by becoming straight close to the antenna, but the eye could scarcely be regarded as notched. Both species are glabrous on the upper-surface and almost so on the under-surface. The genus, according to Chapuis' and Lefevre's tables, would belong to the *Iphimeitae*. Typical species, *tricolor*.

EUCOLASPIS TRICOLOR, n. sp.

♂. Flavous; scutellum and elytra metallic green, abdomen black or deeply infuscated.

Head with moderately dense but not crowded punctures, sharply defined but not very large, and denser and smaller on clypeus than elsewhere. Antennae passing middle of abdomen, second joint stout and considerably shorter than third, third to sixth very thin, the following ones somewhat stouter. *Prothorax* about twice as wide as the median length, sides strongly and evenly rounded; with fairly dense and moderately large punctures, becoming rather crowded on sides. *Elytra* sub-oblong-ovate, about one-fourth wider than prothorax and about four times as long; with dense punctures of moderate size, slightly larger behind shoulders and slightly smaller on apical slope than elsewhere. Flanks of *prosternum* polished and almost impunctate. Fifth segment of *abdomen* shallowly depressed in middle. *Tibiae* rather thin, feebly increasing in width from base to apex; basal joint of four front tarsi rather long, but not very wide, although decidedly larger than those of the hind pair. Length, 2¾-3¼ mm.

♀. Differs in having the elytra brassy or brassy-red, but with the margins greenish, the abdomen no darker than the rest of the under-surface, the eyes slightly smaller, antennae shorter, abdomen more evenly convex, and basal joint of all the tarsi of even size and less parallel-sided.

Hab.—Queensland: Mount Tambourine (H. J. Carter and A. M. Lea). Type, I. 3616.

A beautiful little insect. The antennae are sometimes feebly infuscated at the apex. On some specimens there is a vague transverse impression between the eyes, and on the others there is a feeble longitudinal one, but both are sometimes absent. The elytral punctures, except on parts of the apical slope, are not placed in striae, although on some other parts a lineate arrangement may be vaguely traced; behind the shoulders (93) many of them are transversely confluent, the space so occupied varies from a small one quite close to the shoulder to fully half or more of each elytron, but on some specimens they are all free; there are thus within the limits of a well-marked species characters regarded by Chapuis and Lefevre as of super-generic importance. The front femora from some directions appear to be feebly angulate on the lower-surface, but they are certainly not dentate. Two pairs were taken *in cop.* and are still fastened together; of these, one female (belonging to Mr. Carter) has the elytra almost as conspicuously green as on the males, but four other females have them coloured as described.

---

(93) The shoulders themselves are polished and impunctate.

EUCOLASPIS TRANQUILLA, n. sp.

♀. Reddish-piceous with a slight metallic gloss; head, prothorax, scutellum, and parts of legs paler, basal half of antennae (the apical half infuscated) and palpi still paler.

Head with rather small and not very dense but clearly defined punctures, becoming still smaller on clypeus; a vague depression between eyes. Antennae extending to about middle of abdomen, second joint stouter and much shorter than third. *Prothorax* about thrice as wide as the median length, with irregularly distributed (but nowhere very dense) punctures of moderate size. *Elytra* about one-third wider than prothorax, shoulders rounded, sides parallel to apical third; punctures of moderate size about base, becoming much smaller posteriorly. Flanks of *prosternum* highly polished, but at base feebly wrinkled. Front *femora* subangulate or very feebly dentate; tibiae gently and regularly increasing in width to apex. Length, 4 mm.

Hab.—New South Wales: Ben Lomond, 4,500 feet (A. J. Turner). Type (unique), I. 3617.

A soberly-coloured species, the shades of colour not sharply contrasted although distinct; the slight metallic gloss is of a bluish tone, and is more noticeable on the elytra than elsewhere. In general appearance it is not at all close to the preceding species, but in all generic characters it conforms to same; at first it would appear to belong to *Rhyparida*, but it seems undesirable to refer to that genus any species whose four hind tibiae are not notched. The type is a female, but as the sexual characters of the genus are rather slight it has been described. The elytral punctures are larger and more crowded behind the shoulders than elsewhere, about the middle they are in irregularly geminate series, on the apical slope they are very small and in single rows; striation is distinct only near the suture on the apical slope.

DERMORHYTIS.

The type of this genus is the Cinghalese *D. igneofasciata* of Baly; Baly later on referred to the genus *D. apicalis*, from Borneo, which in 1885 was listed by Lefevre as an *Abirus*. But Jacoby, in 1884, had described as a *Dermorrhytis*, *D. femoralis*, from Queensland, stating that it was closely allied to *D. apicalis*, and Lefevre listed it as a *Dermorhytis*. There is, therefore, considerable doubt as to whether the species is a *Dermorhytis* or an *Abirus*, whilst its description reads much as if founded upon a species of *Geloptera*, similar to such species as *scitula* or *angulicollis*. Of *femoralis* the legs and abdomen (except as to the colour of the former) were not even mentioned, so that there is nothing to indicate the sex of the type; if really a *Geloptera* it probably has well-defined characters in the abdomen and legs.

PRYPNOCOLASPIS, n. g.

Eyes lateral, subreniform, moderately faceted. Clypeus subtriangular, lateral sutures distinct. Labrum very short. Antennae not very long, second joint short. Palpi short. *Prothorax* transverse, base bisinuate, sides widely margined and conspicuously dilated to base, apical angles produced forwards. *Scutellum* semicircular. *Elytra* not narrower than base of prothorax. *Prosternum* with medisternum rather wide at base and apex, but encroached upon by coxae, front edge conspicuously elevated and separated from episterna by a notch on each side; episternum on each side with front margin gently rounded. Metasternum elongate. *Legs* moderately long; front femora dentate; tibiae not longitudinally canaliculate, and not notched near outer apex; claws appendiculate.

The type of *latibasis* was standing with the *Eumolpides* in the Blackburn collection; nor can I see that it can be referred to any other subfamily. The conspicuously appendiculate terminal joint of antennae, pronotum with a wide transverse impression near base, the shape of the prosternum, abdomen entirely concealed from above, tarsi with third joint bilobed to base, and the appendiculate claws exclude it, by various combinations, from all other subfamilies than the *Eumolpides*. Certainly in that subfamily the genus does not appear to have any close Australian ally, but I can find no character to exclude it. From some directions the claws appear to be simple, but they really have a fairly large basal appendix. On *latibasis* the sides of the prothorax are conspicuously and evenly dilated from apex to base, the base itself being slightly wider than the elytra. On *submetallica* the sides are dilated from apex to near base, but are then rounded off, so that the base is the exact width of the base of elytra (these also having each shoulder rounded off). They are both entirely glabrous on the upper-surface. Typical species, *latibasis*.

PRYPNOCOLASPIS LATIBASIS, n. sp.

Pl. vii., figs. 93 and 100; pl. viii., fig. 170.

Of a rather dingy-flavous; under-surface lightly infuscated, five apical joints of antennae (wholly or in parts), tips of palpi, and parts of tarsi, more or less blackish.

Head with a subcircular impression in middle, with a narrow impression from same to base; with irregularly distributed and rather small punctures; clypeus with narrow, oblique sutures, almost meeting posteriorly at the median impression. Antennae not very thin, scarcely extending to hind coxae, second joint about half the length of third; third, fifth, and seventh each a trifle longer than the fourth, sixth, and eighth. *Prothorax* widely transverse, sides oblique, and strongly increasing in width from apex to base, margins narrow in front, rapidly becoming wider to base; with minute, scattered punctures, and some larger ones, but still small, towards sides. *Elytra* almost parallel-sided to near apex, base slightly narrower than base of prothorax; with irregular double or semi-double rows of not very large punctures, becoming condensed into single rows posteriorly; interstices between same more or less distinctly elevated, and themselves with small punctures. Fifth segment of *abdomen* slightly upcurved in middle. Front *femora* strongly dentate. Length, 8 mm.

Hab.—North-western Australia: Murchison (Blackburn's collection). Type, I. 3413.

The prothorax is remarkable. The basal joint of the middle tarsi is slightly larger than on the front pair, and slightly smaller than on the hind pair, a reversal of the usual proportions. Two of the interstices on each elytron, in addition to being slightly elevated above their fellows, are also each supplied with a narrow median ridge, quite distinct from some directions. The flanks of the prosternum are highly polished, but from some directions light striae become visible. The type is probably a female.

PRYPNOCOLASPIS SUBMETALLICA, n. sp.

Black with a slight metallic gloss, bluish on head and prothorax, brassy on elytra, and greenish on parts of undersurface; front angles of prothorax, front of clypeus, labrum, four basal joints of antennae, and base of each of the three next, palpi (tips excepted), and legs (knees, tarsi, and tips of tibiae excepted) more or less reddish.

Head with a rather wide, shallow, median impression, feebly connected with the base; with irregularly distributed punctures of moderate size or small, and slightly denser on clypeus (whose lateral sutures are oblique) than elsewhere. Antennae extending to hind coxae, second joint about half the length of third, the latter equal to fourth, fifth to eighth and the eleventh subequal in length and a trifle longer than the ninth and tenth. *Prothorax* at base (which is lightly bisinuate) about thrice as wide as the median length, sides moderately rounded and much wider at base than at apex, margins rather wide; with numerous small punctures on disc, becoming somewhat larger on sides, and asperate on margins. *Elytra* slightly wider than base of prothorax, almost parallel-sided to near apex; punctures and interstices irregular. *Under-surface* feebly shagreened. Flanks of prosternum finely wrinkled. Abdomen lightly upcurved at middle of apex. Front *femora* acutely dentate. Length, 7½-8 mm.

Hab.—Western Australia: Cue (H. W. Brown). Type, I. 3409.

The prothorax has the sides more rounded and less conspicuously dilated to base than on the preceding species, and the front angles are more acutely produced; and the front edge of the medisternum is less conspicuously elevated and but feebly undulated, instead of distinctly notched, where it joins each episternum. The elytra appear to be very minutely wrinkled all over, their punctures are of moderate size (slightly larger than on the preceding species), and in places are in feeble semi-double rows, becoming single posteriorly, but they are mostly dense and irregular, from behind the shoulders along the middle to about the apical third they are frequently transversely or irregularly confluent; some of the interstices are feebly traceable to base, and they are more distinct on the apical slope than elsewhere. The basal joint of each tarsus is moderately large, but as they are alike on all six the two specimens in the Museum would appear to be females: one of them has the fourth segment of abdomen depressed in middle, but this appears to be due to irregular contraction.

TRYPOCOLASPIS, n. g.

Eyes large, rather coarsely faceted, lightly notched behind antennae. Clypeus widely transverse, not separated from head by a distinct suture. Labrum short, feebly notched in front. Antennae long. *Prothorax* strongly transverse, base, apex, and sides narrowly margined, sides evenly rounded in middle. *Scutellum* small. *Elytra* not much longer than wide, closely applied to and very little wider than prothorax, each (across middle) with about twenty rows of fairly large punctures of almost even size throughout, and nowhere transversely confluent. *Prosternum* with medisternum wide, front portions very narrow in front of coxae; episternum on each side with front margin wide, oblique, and almost straight, lateral suture deep. Metasternum short. *Abdomen* with basal segment (along middle) at least as long as two following combined. *Legs* short; femora edentate; tibiae longitudinally canaliculate, somewhat dilated at apex; the four hind ones not notched near outer apex; claws appendiculate.

The feature by which this genus may be most readily identified is the punctuation of the elytra; the punctures across the middle are usually in quite regular, closely placed rows, although towards the base some of the rows run out at the suture, and some of them disappear about the apex, but on the apical slope the punctures are quite (or almost) as large as elsewhere. On some of the species the interstices between the punctures appear almost costiform, on others some of the interstices are more distinctly elevated than the others, and on *multicarinata* the elytra are acutely costate in a rather curious way. The species are all compact, glabrous, and metallic, and they usually have more or less reddish legs. Seen from behind, the prothorax appears to be considerably narrowed in front, but this is largely due to the front angles being strongly depressed below the middle. The sexes differ in the abdomen and legs. The genus, except for one species that occurs in Southern Queensland and parts of New South Wales, appears to be confined to Northern Queensland, and its nearest ally is perhaps *Cleorina*, although it is not very close to that genus. Typical species, *biimpressa*.

Following is a table of the species(94):—

A. Elytra with numerous conspicuous abbreviated carinae	*multicarinata*
AA. Elytra without such.	
B. Sutural stria without punctures on apical slope	*sinuata*
BB. Sutural stria with punctures there.	
C. Prothorax with ordinary punctures ...	*multiseriata*
CC. Prothorax with reticulate punctures.	
D. Fourth abdominal segment of male with a curious median process ...	*ventralis*
DD. Fourth segment without such.	
E. Hind tibiae of male widest at middle	*biimpressa*
EE. Hind tibiae of male widest at apex.	
F. Legs mostly pale	*punctatostriata*
FF. Legs mostly dark	*obscuripes*

TRYPOCOLASPIS BIIMPRESSA, n. sp.

Pl. viii., fig. 151.

♂. Metallic; under-surface black, in places obscurely diluted with red, labrum and appendages flavous or testaceo-flavous, apical half of antennae usually infuscated.

Head with rather small, dense, reticulate punctures; feebly or not at all depressed along middle. Antennae extending to about middle of abdomen, second joint stouter than but scarcely as long as third, third to sixth subequal in length,

---

(94) There are two females of a species as large as *multicarinata* from Port Denison in the Macleay Museum; they probably belong to a new one, but as it seemed possible that they were unusually large specimens of *punctatostriata*, they were not described.

the following ones longer and somewhat stouter. *Prothorax* with evenly rounded sides, with two rather large, shallow, circular depressions about middle towards base; punctures much as on head. *Elytra* with numerous rows of well-defined punctures; many of the interstices distinctly elevated. Fifth segment of *abdomen* with a shallow median fovea. Hind *tibiae* widest in middle, thence strongly narrowed to base and feebly to apex; basal joint of four front tarsi rather strongly inflated. Length, 2¼-2½ mm.

♀. Differs in having the eyes somewhat smaller and more distant, abdomen non-foveate, hind tibiae thinner and feebly increasing in width from base to apex, and basal joint of four front tarsi much smaller.

Hab.—Queensland: Cairns district (Macleay Museum, E. Allen, and A. M. Lea). Type, I. 3406.

An abundant species in the Cairns district. The upper-surface, whilst always metallic, is seldom brightly so; the main colour is usually brassy-green, but sometimes brassy or bronzy. On the elytra the margins are nearly always conspicuously bluish, and there are bronzy or obscure purplish markings, sometimes in the form of large obscurely defined spots, but frequently confined to some of the elevated parts, occasionally there is an ill-defined bluish spot on the disc of each. The prothorax varies from entirely brassy-green to almost entirely bronzy, but the two colours are usually obscurely mingled; the head is usually more obscurely metallic than the prothorax; the palpi are nearly always pale-flavous, and the knees are sometimes lightly infuscated. Many of the rows of elytral punctures are short; about the base the striae are not well impressed, but posteriorly they become very evident owing to the greater elevation of the interstices; many of these are oblique owing to the brevity of some of the rows; on each elytron there are three interstices that are more conspicuously elevated than the others, but their respective positions vary, thus (counting the sutural interstice as the first) across the middle they are the fifth, eighth,(95) and tenth, but towards the base they become the seventh, eleventh, and fourteenth, and at summit of apical slope the third, fifth,(96) and seventh. Each of the circular depressions (they could scarcely be regarded as foveae) on the pronotum is about thrice the length of the scutellum; although not deep, they are usually quite distinct.

---

(95) Between the fifth and eighth for some distance along the middle the other interstices are sometimes almost or quite as strongly elevated.

(96) This one rather abruptly ends on the slope itself.

On the head and prothorax of this and of all other species, except *multiseriata* and *multicarinata*, the punctures are closely placed together and shallow, with thin walls, somewhat suggestive of shallow honey-comb; and even on the species named there is an approach to same on the head. On all the species there are rather large and distinct punctures on the flanks of the prosternum, but adjacent to the episterna there are sometimes shining and almost impunctate spaces.

TRYPOCOLASPIS OBSCURIPES, n. sp.

♂. Dark metallic brassy-blue or bronzy-green; elytra with bronzy or purplish markings, under-surface black, legs blackish, tarsi, antennae, and palpi reddish, labrum and front tibiae somewhat darker.

Head much as on preceding species, except that the antennae are somewhat shorter. *Prothorax* much as on that species, except that there are no circular depressions towards the base. *Elytra* with numerous rows of well-defined punctures, and with several interstices elevated above the others. *Abdomen* with a small, circular apical fovea. Four front *tibiae* lightly curved and increasing in width to apex, the others rather acutely angulate at outer apex. Length, 2-2¼ mm.

♀. Differs in having abdomen non-foveate and hind tibiae somewhat thinner.

Hab.—Queensland: Cairns district (Macleay Museum, E. Allen, and A. M. Lea). Type, I. 3599.

In size, and to a certain extent in appearance, close to the preceding species, but less brightly metallic, prothorax without subfoveate impressions, elytra more roughly sculptured, legs darker, hind tibiae of male of different shape, and the basal joint of the four front tarsi much smaller (scarcely larger than those of the female). On each elytron of two females there are three large purplish blotches—one at base, one at middle, and one at summit of apical slope, but towards the side they are all connected together; but on another female and on two males the elytral markings are very obscure; the tip of the middle tibiae is usually diluted with red. The elytral punctures, although each is sharply defined, are in less regular rows on the basal half than on the preceding species, but posteriorly they are set in conspicuous striae; on each elytron across the middle three interstices are usually distinctly elevated above their fellows, but at the summit of the apical slope the four adjacent to the suture are equally prominent. From some directions the four hind tibiae seem to be feebly notched near the outer apex, but this appearance is due partly to the dilated apex and partly to clothing, but true subapical notches (as in *Rhyparida*) are absent.

TRYPOCOLASPIS PUNCTATOSTRIATA, n. sp.

Pl. viii., fig. 152.

♂. Metallic; under-surface black, tip of abdomen sometimes diluted with red, labrum and appendages more or less reddish.

Head much as on *biimpressa*. *Prothorax* much the same, except that the two circular depressions are much more feeble. *Elytra* punctate-striate. Fifth segment of *abdomen* with a transverse median fovea. Hind *tibiae* gently increasing in width from base to apex, but the latter somewhat angular. Length, 2½-3 mm.

♀. Differs in having the abdomen more convex and non-foveate.

Hab.—Queensland: Cairns district (A. M. Lea), Mossman River (Macleay Museum), Kuranda (H. H. D. Griffith and H. J. Carter, from G. E. Bryant). Type, I. 3600.

It is not always easy to distinguish small females of this species from large ones of *biimpressa*, although the elytral sculpture is more regular; but the males are readily distinguished by the hind tibiae (see figs. 151 and 152), and by the four front tarsi; the basal joint of each of these on the present species is but slightly larger than on the female, instead of being conspicuously inflated. From the preceding species, which has somewhat similar hind tibiae, it differs in the sculpture of elytra, colour of legs, and abdomen of male. The general colour is more or less brassy, sometimes brassy-green, and sometimes almost golden-red (but seldom brilliantly so); the head and prothorax are usually uniformly coloured; on the elytra there are irregularly disposed blotches or streaks, usually more or less purplish, but shading off to various other tints, and seldom exactly alike on any two specimens; the margins are nearly always bluish, but are occasionally green; one specimen has the elytra of a bright green with coppery-red markings; the antennae are usually flavous at the base, becoming darker, but seldom distinctly infuscated, towards apex; the palpi are pale-flavous. The elytral punctures are well defined, although somewhat smaller than on the preceding species, and are in regular rows, the striae in which they are set are everywhere well defined, and the interstices separating them are regularly elevated and quite uniform, except at the extreme base, on the sides behind the shoulders, and about the apex, but no interstice is conspicuously elevated above its fellows.

TRYPOCOLASPIS SINUATA, n. sp.

♂. Brassy or brassy-green; under-surface black, in parts with a coppery-gloss, antennae and palpi somewhat flavous, the former with some of the apical joints infuscated at apex, legs partly dark.

Head with somewhat shorter antennae, but otherwise much as on *biimpressa*. *Prothorax* much the same, except that the two subfoveate impressions are entirely absent. *Elytra* with rows (mostly regular) of rather large, deep punctures; some of the interstices elevated above their fellows. *Abdomen* with a small, circular median fovea. Middle *tibiae* wider at apex than the others, hind pair rather strongly narrowed from middle to base; basal joint of four front tarsi rather strongly inflated. Length, 1¾-2 mm.

♀. Differs in having the abdomen non-foveate, in having thinner tibiae, and in the tarsi.

Hab.—Queensland: Cairns district (A. M. Lea). Type, I. 3407.

A beautiful little species, and apparently the smallest of the subfamily in Australia. The elytra are without distinct markings, but as some parts are more brassy than others they do not appear to be quite uniformly coloured: the femora, except near the base, are usually deeply infuscated, sometimes almost black; the hind tibiae are also sometimes infuscated; one specimen has the whole of the upper-surface of a beautiful violet colour. The striation of the elytra is not well impressed, despite the regularity of the punctures, but posteriorly it becomes deeper, the subsutural stria, however, is without punctures on the apical slope: across the middle of each elytron the third, sixth, and ninth interstices are slightly elevated above their fellows, but elsewhere (97) their elevation is less pronounced; starting from each shoulder (but concealed from above) there is a distinctly elevated interstice that commences as the fourth (counting the margin as the first), rather abruptly curves downwards to become the second, and continues till at the apex it joins the second and third subsutural ones.

TRYPOCOLASPIS VENTRALIS, n. sp.

♂. Brassy-green or brassy-blue; elytra with metallic spots, under-surface black, labrum and appendages more or less reddish, but apical half of antennae infuscated.

Head much as on *biimpressa*, except that the median depression is more distinct and that the second joint of antennae is shorter. *Prothorax* much the same, except that

---

(97) Elsewhere their numbers differ owing to the brevity of some of the rows of punctures.

the two subfoveate impressions are scarcely traceable. *Elytra* with numerous, more or less regular rows, of rather large, deep punctures. Fourth segment of *abdomen* almost as long as second and third combined, and with a conspicuous double ridge along the middle; fifth segment very short in middle and feebly concave there. Hind *tibiae* feebly increasing in width from base to apex, and angulate at outer apex. Length, 2½-2⅔ mm.

Hab.—Queensland: Coen River (H. Hacker's No. 265). Type, I. 3615.

The two specimens before me differ solely in colour, one having a bluish, the other a greenish appearance; on each elytron there are three brassy spots, one near the base, a second before the middle near the suture, and the third (little more than a streak) about summit of apical slope. The elytral punctures are larger than on *punctato-striata*, and almost as regular, but the striae are so feebly impressed (except on the apical slope, where they are strong) that they might fairly be regarded as almost absent: from some directions two or three of the interstices are rather more distinct than their fellows, but they are nowhere conspicuously elevated above them. The basal joint of each of the four front tarsi is not strongly inflated, being, in fact, scarcely larger than those of the hind ones; the hind tibiae are also without conspicuously masculine features, but the abdomen is so peculiar that the specimens would certainly appear to be males.

TRYPOCOLASPIS MULTISERIATA, n. sp.

♂. Brassy; under-surface dark brown, labrum and appendages more or less reddish.

Head with dense, subreticulate punctures of moderate size, with a vague median line, a small impunctate space near each antenna. Antennae slightly shorter, but otherwise much as on *biimpressa*. *Prothorax* considerably wider at base than at apex, the front angles much lower than the middle, sides strongly rounded: in middle with rather dense punctures of rather small size, becoming more crowded and somewhat larger towards sides, interspaces with minute punctures. *Elytra* suboblong; with numerous regular rows of rather large punctures, smaller towards suture, and larger behind shoulders than elsewhere; striae feebly impressed even on apical slope (except close to suture). Fourth segment of *abdomen* distinctly longer than the adjacent ones, fifth shallowly depressed for about half of its width. Hind *tibiae* somewhat dilated near apex, on lower surface about apex with a conspicuous fringe or loose fascicle; basal joint of four front tarsi distinctly inflated. Length, 3¾-4 mm.

♀. Differs in having the abdomen evenly convex, hind tibiae thinner and without the subapical fringe, and in the tarsi.

Hab.—Queensland: Coen River (W. D. Dodd). Type, I. 3408.

The prothoracic punctures are not reticulate in character as on all the preceding species, although at the sides, owing to being crowded together, there appears to be an approach to same; towards the base there are feebly oblique impressions (with the punctures rather more crowded than on the adjacent surface) at the positions of those of the circular ones of *biimpressa*. No elytral interstice is conspicuously elevated above its fellows on the disc, but the fourth (counting at the middle) from the side is rather distinctly elevated, although not visible from above. The female has the lateral margins of prothorax and elytra bluish, and the basal margins of the former greenish, and some of the apical joints of antennae are infuscated.

TRYPOCOLASPIS MULTICARINATA, n. sp.

♂. Golden or golden-red, or brassy, occasionally with a faint greenish gloss in places; under-surface black with a brassy gloss in places, or entirely brassy; appendages more or less reddish.

Head with crowded subreticulate punctures of moderate size; with a feeble median line. Antennae with second joint stouter and slightly shorter than third, the joints slightly increasing in length to seventh, which is a trifle longer than each of the three following ones, and a trifle shorter than the eleventh. *Prothorax* with seven shallow depressions, causing the surface to appear uneven; with crowded punctures. *Elytra* with crowded punctures of moderate and almost even size throughout; with numerous acute carinae. *Abdomen* with a small circular fovea in the middle of a shallow apical depression. *Tibiae* more conspicuously carinated than usual, the four hind ones obtusely produced at outer apex; basal joint of four front tarsi not conspicuously inflated. Length, 3-4 mm.

♀. Differs in being more brightly metallic, abdomen nonfoveate, and legs somewhat thinner.

Hab.—Queensland: Mount Tambourine (A. M. Lea); New South Wales: Dorrigo (W. Heron), Coramba (H. J. Carter, from W. Heron), Blue Mountains (Blackburn's collection and E. W. Ferguson). Type, I. 3405.

One of the finest species of the subfamily. Some of the specimens have an appearance as of old gold; the femora are occasionally infuscated; the seventh and eighth joints of antennae are usually infuscated, sometimes the eighth only, and occasionally none at all. The carinae are usually less shining (they sometimes appear almost black) than the adjacent parts, this being especially the case with the male; they are all acute and conspicuously elevated, and appear like more or less elongated remnants of acutely elevated interstices; counting from the suture across each elytron (but excluding that not visible from above) there are near the base five (two very short),(98) across the middle there are two, shortly after same three or four, at summit of apical slope four, and below same from one to three; true striation appears to be entirely absent from the elytra, the punctures being so close together that, although in rows, those of one row frequently partially displace those of the adjacent rows, although not confluent with them. The prothoracic punctures are everywhere crowded together, but they are not net-like, as on most species of the genus, being deeper, round (although some are elongated), and not flat-bottomed; the shallow depressions are placed as follows:—Two on each side (the front one of these is sometimes almost absent), two about the middle towards the base (as on *biimpressa)*, and the seventh (and largest) between the same and the apex. The abdomen of the male is more convex than is usual in males of the subfamily. The sexual differences of the tarsi are but slight.

LEPIDOCOLASPIS, n. g.

Eyes rather small, lateral, prominent, entire, and rather coarsely faceted. Clypeus widely transverse. Labrum the length of clypeus, but somewhat narrower. Antennae elongate. *Prothorax* lightly transverse, sides gently rounded and simple. *Scutellum* distinct. *Elytra* suboblong, much wider than prothorax. *Prosternum* with medisternum wide, parts in front of coxae very narrow; episternum on each side small, front edge oblique. Metasternum about as long as basal segment of abdomen. *Legs* moderately long: all femora dentate; tibiae longitudinally canaliculate, not notched near outer apex; claws bifid. Squamose.

The only species known is a minute, rather densely squamose insect, in general appearance somewhat like *Hypoderes denticollis* in miniature. Its nearest (but not very close) ally is perhaps *Cleorina;* from *Tomyris* it is distinguished by the absence of tibial notches; from *Edusa* and *Hypoderes* by the bifid claws and entire eyes.

---

(98) On two specimens there are seven, of which three are short. On these specimens also the carinae are more conspicuous elsewhere.

LEPIDOCOLASPIS ACANTHOMERA, n. sp.

♂. Of a rather dingy castaneous-brown; appendages somewhat paler. Densely clothed with thin stramineous scales (scarcely setae), somewhat irregularly distributed on elytra.

Head with dense, normally concealed punctures, except that on clypeus they are not concealed; with a narrow median line. Antennae passing hind coxae, second joint stouter and slightly longer than third, seventh to eleventh stouter than third to sixth, eleventh about once and one-half the length of tenth. *Prothorax* across middle slightly more than the median length, across apex slightly less, sides slightly rounded, base not much wider than apex. *Elytra* almost double the width of prothorax, sides parallel to near apex, with closely set rows of fairly large but partially concealed punctures, but interstices not elevated, and striation apparently absent. Fifth segment of *abdomen* almost as long as third and fourth combined. All *femora* acutely dentate. Length, 2¼-3 mm.

♀. Differs in being somewhat stouter, abdomen strongly convex, and with fifth segment much shorter, and its middle encroached upon by pygidium, and by the somewhat shorter appendages.

Hab.—Northern Queensland (Blackburn's collection), Cairns district (Macleay Museum and A. M. Lea). Type, I. 3402.

The elytra are usually paler than the prothorax, but are sometimes obscurely mottled, and the mottling is rendered more conspicuous by the absence of clothing from the darker parts, or to the clothing there being of a smoky colour. On the under-surface the clothing is not uniformly distributed, and is denser (and usually of a snowy-whiteness) on the sides of the sterna than elsewhere. On abrasion the prothorax is seen to have dense and fairly large punctures, but they are normally concealed by the clothing; some specimens have a feeble remnant of a median carina. The basal joint of the front tarsi of the male is but slightly larger than on the female.

CUDNELLIA.

The species of this genus certainly "look" as if they belonged to the *Clidonotides*, and to the vicinity of *Chalcolampra*, but I shall not question Blackburn's reference of the genus to the *Eumolpides*. They may be tabulated as follows:—

A. Elytra with conspicuous rows of strong punctures ... ... *mystica*
AA. Elytra with much smaller punctures.
  B. Head with minute punctures ... ... *insularis*
  BB. Head with very distinct punctures.
    C. Tibiae acutely triangularly armed at outer apex ... ... *apicalis*
    CC. Tibiae not so armed . . .. *canaliculata*

CUDNELLIA APICALIS, n. sp.

Pl. viii., figs. 153-155.

♂. Black, with a coppery gloss; labrum and appendages reddish, but tips of several joints of antennae blackish. Upper-surface glabrous, under-surface and legs very feebly pubescent.

Head with fairly dense but not crowded punctures of moderate or small size, becoming much smaller on clypeus, not depressed between eyes, but with a feeble longitudinal impression towards base. Eyes rather small, prominent, and entire. Antennae elongate, first joint rather stout, second not much shorter than third, eleventh somewhat stouter and longer than tenth. *Prothorax* about twice as wide as the median length, sides strongly rounded, front angles greatly below middle; with numerous small punctures interspersed with much smaller ones. *Elytra* scarcely longer than the greatest width, which is before the middle, base truncate and the width of base of prothorax; with rather small punctures, in places in double or semi-double rows, and rather dense and irregular on sides, where (behind the shoulders) they are somewhat larger than elsewhere. Flanks of *prosternum* with scattered punctures and many fine wrinkles. *Abdomen* shallowly depressed at apex. *Legs* stout and rather long; femora edentate; tibiae with acute costae, acutely triangularly armed at outer apex; basal joint of four front tarsi strongly inflated. Length, 3¾-4 mm.

♀. Differs in having the abdomen more convex, apical segment simple, in the tarsi, and in the sides of the elytra.

Hab.—Western Australia: Swan River (A. M. Lea). Type, I. 3034.

Considerably larger and more robust than *mystica*, and the elytra very different towards sides, but in all features agreeing with the original generic diagnosis; the tibiae, however, are much more produced at the apex than on *mystica*, much, in fact, as on *Edusoides pulcher*. Specimens were sent some years ago to the late Rev. T. Blackburn, and although not described by him they were standing in his collection as belonging to *Cudnellia*. The elytra (except at the margins) are entirely without true striae; those of the female differ considerably from those of the male, as towards each side they have three (four posteriorly) undulated ridges, on some specimens appearing as irregular series of elongated tubercles. The front tibiae at the apex are concave on the lower-surface for the reception of the base of the tarsi; seen from below a small subapical tooth (suggestive of several species of *Agetinus*) may be seen, in addition to the strong apical armature.

CUDNELLIA CANALICULATA, n. sp.

♂. Colour and clothing much as in preceding species.

Head with crowded punctures of moderate size, becoming longitudinal at base, and scarcely smaller on clypeus than elsewhere; with a vague longitudinal impression. Eyes and antennae much as on preceding species, except that the second joint of the antennae is quite as long as (or a trifle longer than) the third. *Prothorax* scarcely twice as wide as the median length, sides strongly rounded, front angles much below middle; with numerous rather small but well-defined punctures, rather more crowded and larger on sides than on disc, but almost absent from hind angles. *Elytra* subovate, about once and one-fourth as long as wide, base truncate and no wider than base of prothorax; with numerous punctures of moderate size, becoming larger and somewhat crowded behind shoulders and smaller and seriate in arrangement posteriorly. Flanks of *prosternum* with scattered punctures and wrinkles. *Abdomen* with a circular apical fovea. *Femora* stout, edentate; tibiae strongly but almost evenly dilated to apex, with acute costae, two of which, on the upper-surface of each of the four hind ones, enclose a channel that at its apex becomes excavated for the reception of the base of the tarsi; basal joint of front tarsi inflated. Length, 3½ mm.

♀. Differs in having the abdomen more convex and nonfoveate, tibiae thinner, and in the tarsi.

Hab.—Western Australia (Macleay Museum and Blackburn's collection). Type, I. 3417.

An apterous species (as are probably all species of the genus), at first glance much like the preceding one, but readily distinguished therefrom by the tibiae and elytra, the latter of which also embrace the abdomen to a much less extent. Of the two specimens before me, the female (belonging to the Macleay Museum) agrees perfectly in colour with the description of that of the preceding species, but the type has most of the apical half of the antennae, and parts of the legs, infuscated. The elytral striae are not deep on the apical slope, but are very distinct there on account of the punctures being confined to them.

CUDNELLIA INSULARIS, n. sp.

♂. Black with a coppery gloss, becoming slightly greenish on abdomen; appendages of a more or less dingy-flavous or testaceous, but antennae with apical half lightly infuscated, base of tibiae and of femora, and middle of labrum also infuscated. Under-surface and legs sparsely pubescent.

Head obscurely shagreened and with minute punctures. Eyes rather small, prominent, and entire. Antennae elongate, second joint much shorter than third, eleventh very little longer than tenth. *Prothorax* about twice as wide as the median length, sides strongly rounded, front angles much below middle; with minute punctures, with some larger ones (but still small), scattered about. *Elytra* subovate, not much longer than wide, base truncate and no wider than base of prothorax; with almost regular rows of small punctures, and a few scattered about on basal half. Flanks of *prosternum* smooth and almost impunctate. *Abdomen* with a rather small, round, apical fovea. *Femora* stout, elongate; tibiae stout, dilated to apex, with several costae; basal joint of front tarsi moderately inflated. Length, 4½ mm.

Hab.—Lord Howe Island (J. C. Wiburd). Type (unique), I. 3598.

An apterous species, in some respects close to the preceding one, but with much smaller punctures, and hind tibiae less conspicuously canaliculate. On close examination the elytra appear to be very feebly shagreened, the punctures in the rows are quite as large posteriorly as towards the base, and, being closer together, cause an appearance as of feeble striation on the apical slope.

RHINOBOLUS NITIDUS, Blackb.

The type (now in the British Museum) and a co-type (now in the South Australian Museum) of this species are evidently females. The male differs in being slightly smaller, and with the upper-surface entirely of a brassy-green (the prothorax usually more brassy than green); the under-surface is of a dark metallic green, the antennae and legs are stouter, and the basal joint of each of the four front tarsi is fully twice as wide as the corresponding joint in the female. One female before me has the head and prothorax entirely bronzy-black, and the elytra purplish-black, except for a narrow bluish border.

Hab.—South Australia: Quorn, Kilkerran, Murray Bridge; Victoria: Sea Lake.

RHINOBOLUS PARVICOLLIS, n. sp.

♂. Bright metallic-green, in some places with a brassy gloss; labrum and appendages reddish-flavous, but tips of palpi and parts of antennae blackish.

Head flat and with a small median impression between eyes; with dense and fairly large punctures there, becoming smaller posteriorly, and almost absent at base; clypeus moderately long, notched on each side of base, with punctures as between eyes, but becoming much smaller in front; labrum short, apex incurved. Antennae long and thin, first joint stout, second about half the length of third, third to sixth thin, the following ones somewhat stouter, but all distinctly longer than wide. *Prothorax* strongly convex, very little wider than long, sides strongly rounded; with large and fairly dense punctures, becoming crowded on sides. *Scutellum* semicircular, with sparse, minute punctures. *Elytra* much wider than prothorax; with dense and fairly large punctures, larger behind shoulders (where a few are transversely confluent) than elsewhere, from about middle more or less seriate in arrangement; apical slope striated towards sides and suture. Flanks of *prosternum* with fairly numerous and rather large punctures. Fourth segment of *abdomen* about as long as the second and third combined, fifth with a shallow median fovea. *Femora* rather stout, edentate: tibiae rather thin, not longitudinally canaliculate: basal joint of four front tarsi distinctly inflated. Length, 3½-4 mm.

♀. Differs in having the prothorax slightly more transverse, abdomen more strongly convex, fourth segment scarcely longer than third, fifth simple, hind tibiae not quite so wide at apex, and in the tarsi.

Hab.—Western Australia: Swan River (A. M. Lea). Type, I. 3650.

The combination of glabrous upper-surface, eyes not notched, tibiae not longitudinally canaliculate and not notched, edentate femora, evenly rounded sides of prothorax, and base of elytra considerably wider than base of prothorax, are sufficient to exclude this species from *Edusa*, *Tomyris*, *Cleptor*, *Geloptera*, *Edusoides*, *Agetinus*, and other genera. The clypeus is rather long, and its base on each side is considerably encroached upon by an antenna, as on *R. nitidus*, although not quite as on that species; the antennae are also considerably longer and thinner, and the fourth abdominal segment of the male is considerably longer; but as it does not appear desirable to propose a new genus for its reception, and as it appears to be less aberrant in *Rhinobolus* than in any other, I have referred it to that genus. The apical half of the eleventh joint of antennae is black, but only the tips of the four to six preceding ones. Of the three females before me, one is quite as green as the three males, but the others have the upper-surface almost entirely of a golden-red, with greenish reflections in places.

EXPLANATION OF PLATES.(99)

PLATE V.

Markings of elytra of—

Figs.	1 to 14.	*Rhyparida didyma*, Fab.
,,	15 to 17.	,, *australis*, Boh.
,,	18 and 19.	,, *fulvolimbata*, Lef.
,,	20 and 21.	,, *apicalis*, Jac.
,,	22 to 24.	,, *limbatipennis*, Jac.

PLATE VI.

Markings of elytra of—

Figs.	25 to 27.	*Rhyparida trimaculata*, Jac.
,,	28 and 29.	,, *brevilineata*, Jac.
,,	30. .	,, *dimidiata*, Baly.
,,	31 and 32.	,, *maculicollis*, Baly.
,,	33 and 34.	,, *mastersi*, Blackb.
,,	35. ...	,, *aeneotincta*, Blackb.
,,	36. .	,, *posticalis*, Blackb.
,,	37. ...	,, *amplicollis*, Blackb.
,,	38. ...	,, *medionigra*, Lea.
,,	39. ..	,, *brevis*, Lea.
,,	40. ...	,, *bimaculicollis*, Lea.
,,	41. ...	,, *subangulata*, Lea.
,,	42. ...	,, *melvillensis*, Lea.
,,	43. ...	,, *militaris*, Lea.
,,	44 and 45.	,, *polymorpha*, Lea.
,,	46. ..	,, *tetraspilota*, Lea.
,,	47. ...	,, *mediorufa*, Lea.
,,	48. .	,, *flavolatera*, Lea.

PLATE VII.

Markings of elytra of—

Fig.	49. ...	*Rhyparida triangulifera*, Lea.
,,	50 and 51.	,, *mediovittata*, Lea.
,,	52. ...	,, *insulicola*, Lea.
,,	53 and 54.	,, *variipennis*, Lea.
,,	55 to 57.	,, *tropica*, Lea.
,,	58. ...	,, *humeralis*, Lea.
,,	59. ...	,, *commutabilis*, Lea.
,,	60. ..	Maxillary palpus of *Edusa securigera*, Lea.
,,	61. ...	Apex of antenna of *Colaspoides rectilatera*, Lea.
,,	62.(100)	

Side of prothorax of—

,,	63. ...	*Cleorina purpurea*, Lea.
,,	64. ...	*Edusa diversicollis*, Blackb.

---

(99) In the patterns of the elytra of the species of *Rhyparida*, to ensure a perfectly straight suture, the markings are usually shown a little to the left of their true positions, as seen from a slightly oblique direction. Many other species and varieties of *Rhyparida*, in addition to those shown, have elytral markings, but these are often so vaguely limited (although the markings themselves are often very conspicuous) that they do not lend themseves to illustration by plain black and white methods. Parts of the legs, and especially the apical portions of the tibiae, look very different from different points of view. Compare figs. 109-111, 123, 124, 127, 128, 135-137, 153, and 154.

(100) Accidentally missed.

Side of prothorax of—

Fig. 65. .. *Edusa mira*, Lea.
,, 66. ... ,, *sericea*, Lea.
,, 67 and 68. ,, *securigera*, Lea.
,, 69. ... *Geloptera geniculata*, Baly.
70. ... ,, *jugularis*, Er.
71 and 72. *orientalis*, Lea.
73. ... *setifera*, Lea.
74. ... *uncinata*, Lea.
75. ... *bidentimedia*, Lea.
76. ... *punctatissima*, Lea.
77 and 78. *striatipennis*, Lea.
79. ... *igneonitens*, Baly.
80. ... *hardcastlei*, Lea.
81. ... *latericollis*, Lea.
82. ... *angulicollis*, Lea.
83. ... *nodosa*, Clark.
84. *tuberculata*, Baly.
85. ... *Agetinus subcostatus*, Chp.
86. ... ,, *obliquus*, Lea.
87. ... *Alittus porosus*, Jac. (?)
88. ... ,, *micans*, Blackb.
89. ... *Colaspoides rectilatera*, Lea.
90. ... ,, *similis*, Lea.
91. ... *Cleptor laevicollis*, Lea.
92. ... ,, *electus*, Lea.
93. ... *Prypnocolaspis latibasis*, Lea.
94. ... Intercoxal process of *Geloptera basiventris*, Lea.
95. .. Part of abdomen and pygidium of *Colaspoides complicata*, Lea.
,, 96. ... Claw of *Rhyparida didyma*, Fab. (also of *atra*, Lea).
,, 97. ... ,, ,, *dimidiata*, Baly.
,, 98. ... ,, ,, *decipiens*, Lea.
,, 99. ... ,, *Colasposoma sellatum*, Baly.
,, 100. ... ,, *Prypnocolaspis latibasis*, Lea.
,, 101. ... ,, *Spilopyra sumptuosa*, Baly.

PLATE VIII.

Fig. 102. ... Middle tibia of *Rhyparida didyma*, Fab.
103. ... Hind ,, ,,
104. ... Middle ,, *dimidiata*, Baly.
105. *Cleorina purpurea*, Lea.
106. *Scelodonta simoni*, Baly.
107. ,, *brevipilis*, Lea.
108. ... Hind *Tomyris incisa*, Lea.
109 to 111. *Edusa chrysura*, Germ.
112. ... *suturalis*, Chp.
113. ... *meyricki*, Blackb.
114. ... *fusca*, Lea.
115. ... *spinicollis*, Blackb.
116. ... *abdominalis*, Lea.
117. ... *monticola*, Lea.
118. ... *mira*, Lea.
119. ... ,, *palpalis*, Lea.
120. ... *Geloptera setifera*, Lea.
121. .. ,, *uncinata*, Lea.
122. ... ,, *eluta*, Lea.

Figs. 123 and 124. Hind tibia of *Geloptera rhaebocnema*, Lea.
,, 125 and 126. ,, ,, ,, *tibialis*, Lea.
,, 127 and 128. Front ,, *Agetinus aequalis*, Blackb.
,, 129. ... Middle ,, ,, *compositus*, Lea.
,, 130. ... ,, ,, ,, *cacozelus*, Lea.
,, 131. ... Hind ,, ,, *nitidivirgatus*, Lea.
,, 132. ... Front ,, ,, *juvencus*, Lea.
,, 133. ... Hind ,, ,, ,, ,,
.. 134. ... Front ,, ,, *croesus*, Lea.
135 to 137. Hind ,, *Colaspoides howensis*, Lea.
138. ... ,, ,, ,, *tarsalis*, Lea.
139. ... *picticornis*, Lea.
140. ... *anomogastra*, Lea.
141. ... *haemorrhoidalis*, Lea.
142. ... *foveiventris*, Lea.
143. ... *crassipes*, Lea.
144. ... *Cleptor inermis*, Lef.
145. ... *subhumeralis*, Lea.
146. ... *semiviridis*, Lea.
147. ... Front *laevicollis*, Lea.
148. ... Hind ,, ,,
149. .. ,, *paradoxus*, Blackb.
150. ... Middle ,, ,, ,,
151. ... Hind *Trypocolaspis biimpressa*, Lea.
152. ... ,, ,, *punctatostriata*, Lea.
153 and 154. Front *Cudnellia apicalis*, Lea.
155. ... Hind ,, ,, ,, ,,
156. .. Middle tibia and tarsus of *Tomyris insignis*, Lea.
157. ... Front ,, ,, *Agetinus nitidivirgatus*, Lea.
158. ... ,, ,, ,, *Edusoides pulcher*, Blackb.
159. ... ,, leg of *Colaspoides tarsalis*, Lea.
160. ... Hind tibia and tarsus of *Colaspoides elegantula*, Lea.
161. ... ,, ,, ,, ,, *poeciloderma*, Lea.
162. ... ,, femur and tibia of *Colaspoides pictipes*, Lea.
163. ... ,, ,, ,, ,, *similis*, Lea.
, 164. ... Front tibia and tarsus of *Cleptor coriaceus*, Lea.
, 165. ... Basal joint of middle tarsus of *Edusa discicollis*, Lea.
, 166. ... ,, ,, hind ,, ,, *discicollis*, Lea.
, 167. ... Side of prosternum of *Rhyparida didyma*, Fab.
, 168. ... ,, ,, ,, *australis*, Boh.
, 169. ... ,, ,, ,, *discopunctulata*, Blackb.
, 170. ... ,, ,, *Prypnocolaspis latibasis*, Lea.
, 171. ... Prosternal episternum of *Rhyparida didyma*, Fab.
, 172. ... ,, ,, ,, *dimidiata*, Baly.
, 173. ... ,, ,, ,, *discopunctulata*, Blackb.

A SUPPOSED INCIDENTAL OCCURRENCE OF A SUCKER FISH (*ECHENEIS AUSTRALIS*, Bennett) IN AUSTRALIAN WATERS.

By Edgar R. Waite, F.L.S., Director S.A. Museum.

[*Contribution from the South Australian Museum.*]

[Read June 10, 1915.]

PLATE XI.

ECHENEIS AUSTRALIS, Bennett.

Echeneis australis, Bennett, Narr. Whaling Voy., ii., 1840, p. 273.

Echeneis scutata, Günther, Ann. Mag. Nat. Hist. (3), v., 1860, p. 401, pl. x., fig. B; and Cat. Fish, Brit. Mus., ii., 1860, p. 381; Lütken, Vid. Medd. Kjobenh, 1875, p. 42.

Remilegia australis, Gill, Proc. Acad. Nat. Sci., Phil., 1864, p. 61; Jordan and Evermann, Bull. 47, U.S. Nat. Mus., iii., 1898, p. 2270.

Description.—B ix.; D xxvi. 22; A. 24. V. i. 5; P. 22 dex., 24 sin.; C. 13 + 6. Length of head, 3·5; depth of body, 7·86; and length of caudal, 4·9 in the length; diameter of orbit, 9·9; of eye. 15·6; interorbital width, 1·5; and length of snout, 2·06 in the head; width of body between the pectorals, 4·3; length of disc, 2·0 in the body, or 2·4 caudal included, width of disc, 2·19 in its own length.

Sucker.—The disc, which is relatively larger than in any other species of the family, is slightly broader behind than in front; it extends as far forward as the margin of the upper jaw and overhangs the head and body at the sides. The anterior lamellae extend to within twice the diameter of the eye of each other in front, but the posterior pair are widely separated, and leave a considerable portion of smooth skin between and behind them; each lamella is beset with small spines; the free portion of the posterior edge of the disc equals half the length of the snout and extends beyond the extremity of the adpressed ventrals.

Fins.—Regarding the sucker as the modified first dorsal, the second fin originates at a point nearly half its own length behind the disc; the highest rays are in the anterior fourth of the fin, whence they rapidly diminish. The relative position, size, and shape of the anal is almost exactly that of the second dorsal, and neither reaches the caudal. The ventrals are pointed, the first ray being the longest; they can be received into a groove, and are placed one-third the length of the body behind the mandible; the origin of the anal is at the second third. The anterior insertion of the pectoral is over the opercular margin and close to the upper edge of the body, below the disc; the fin is rounded in shape, and its length is two-thirds the width of the disc. The caudal is well developed, and its margin is quite straight when extended. The cleft of the mouth extends three-fourths the distance from the tip of the mandible to the orbit and the lower jaw, which is narrow, projects beyond the upper, a distance equal to the diameter of the orbit. The two nostrils on each side are virtually in contact, immediately above the angle of the mouth, but distant therefrom a little more than from the upper edge of the head; the anterior nostril has a low rim. Gills four, the first only being double, a long slit behind the fourth, gill-rakers moderate and slender, 14 on the lower limb of the first arch and four tubercles on the ascending limb; no pseudobranchiae.

Teeth.—The teeth are set in broad villiform bands, slightly separated in front, the upper bands are widest at some distance from the mid-line and lie outside the narrow lower jaw when the mouth is closed; the lower bands are widest in front, and extend forward beyond the upper jaw, which is subtruncated; the outermost series of teeth in each jaw is the largest, and the teeth are directed outwards. The bands of the vomerine and palatine teeth together form an almost continuous gothic arch-like figure, those on the palatines being the broader; the tongue is edentulous.

Scales.—The body is everywhere dotted with minute pits containing microscopic scales of ovoid shape; the lateral line is concurrent with the upper edge of the body below the disc from its origin to the end of the pectoral fin, whence it descends to the mid-line of the body, and runs straight to the caudal peduncle, where it again rises slightly, to be lost at the base of one of the rays.

Colour.—The colour when fresh was uniform dark slaty-blue, the edges of the fins a little lighter, the disc was brown.

Length.—472 mm. (18⅝ inches).

The following details of the capture of the sucker fish are kindly supplied by Capt. E. H. Hipkins, master of the tug "Falcon":—"On April 27, 1915, while removing the coal lighter from the Norwegian steamer 'Rena,' outward bound from Europe, the fish was, I believe, disturbed from the side of the vessel by the wash of our propellor, for I first noticed it swimming from the 'Rena' on the surface of the water towards us. After berthing the lighter we tried to catch the fish, but though we got it into the net the latter was so small that the fish jumped out before we could land it and swam under the tug. Later in the day we had to go into dock to tow out a steamer, and passing in I saw the fish coming out, swimming on the surface, and this time we used a larger landing net and secured the fish. I believe the fish came to the surface of the water warmed by the sun's rays, because it found it unusually cold below." Our thanks are due and are tendered to Capt. Hipkins for the trouble he took in securing the stranger, and also for so promptly sending it to the Museum.

Bennett called his fish the "Australasian Remora," but did not state whence it was obtained, nor did he definitely claim it as a new species; there does not, however, appear to be any earlier reference to the name *Echeneis australis*. He writes:—"One individual we captured, and which was by no means the largest we observed, measured one foot five inches in length, and was proportionately broad. Of three examples, one only had 24 striae on the buckler; the other two had 26." The radial formulae of Bennett's specimens may be thus expressed:—

B. x.; D. xxiv.-xxvi. 21; P. 20+?; V. 5; A. 24; C. 20.

Griffiths⁽¹⁾ used the name "Australasian Remora" under a plate of *Echeneis naucrates* and indexed it as "Australian Remora"; Day⁽²⁾ improperly quotes the entry as *Echeneis australis*.

Günther had two specimens from the Indian Ocean; the larger measured 23 in. (585 mm.) in length, but was stuffed, so that the proportions and dimensions given are those of the smaller example, 7 in., 11 lines (202 mm.). The lateral line is not mentioned; it is shown in the figure, but not quite correctly. The disc is quite flat in the fresh fish, but curls up at the edges after preservation, and in this condition is described by Günther, otherwise his account may be well applied to my example.

Jordan and Evermann include *Remilegia australis* as a North American species on the record of Lütken, but in the synonymy given they credit Bennett with "Plates 24-26." The "whaling voyage" was not illustrated with plates, and one may notice as suggestive of the possible source of error that the dorsal striae in Bennett's specimens are expressed as "24-26."

Although the fish was named "Australasian Remora," evidently to be read in the sense *australis* (southern), Bennett did not approach the coast of New Holland nearer than

---

(1) Griffiths, in Cuvier, Animal Kingdom, x., Pisces, 1834.
(2) Day, Fishes of India, 1878, p. 257.

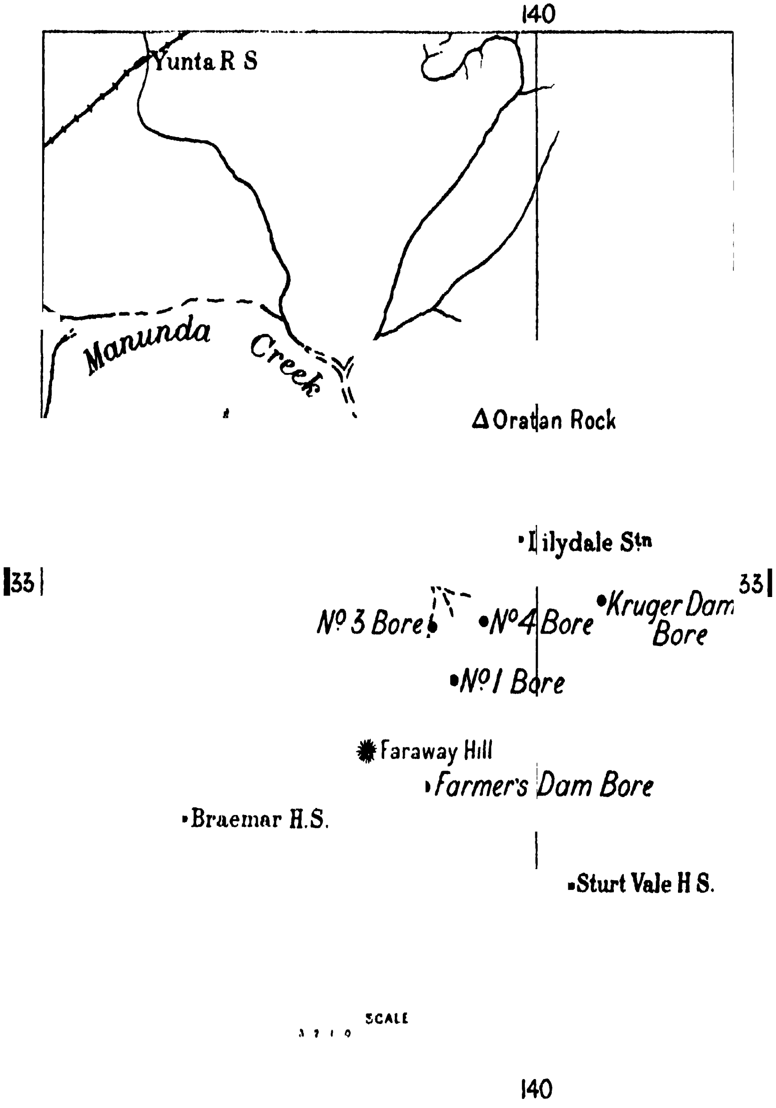
Timor on his way to the Cape, and the present record is apparently the first for Australia. It seems probable that the fish had attached itself to the Norwegian vessel in the Indian Ocean, bound for Adelaide, and when in dock transferred its patronage to the "Falcon."

The chief operative factor in the distribution of pelagic fishes is that of temperature, and as the fundamental host of the sucker fish is some larger fish or mammal, it may be presumed that the limits of endurance of temperature as enjoyed by the host is approximately that of the commensal also.

Though a certain amount of discretion in the choice of a host is doubtless indulged in by the sucker fish, it is believed that some species are specially "attached" to specific animals or fishes. In the case of a species that exhibits less discrimination its range is likely to be greater, but the interesting question arises as to what happens when the fish attaches itself to ocean craft? When the vessel is moving north or south the change in temperature is likely to provide the first element of discomfort, but if the vessel maintains approximately the same latitude, the absence of the supply of usual food would doubtless be an early factor in the misplaced attachment of the sucker fish.

EXPLANATION OF PLATE XI.

Disc of the sucker fish (*Echeneis australis*, Bennett), from a cast (seven-eighths natural size).



Map to show the situation of Boros on the Lilydale Sheep-station.

A LIST OF FORAMINIFERA AND OTHER ORGANIC REMAINS OBTAINED FROM TWO BORINGS ON THE LILYDALE SHEEP-STATION.

By WALTER HOWCHIN, F.G.S., Lecturer in Geology and Palaeontology, University of Adelaide.

[Read August 12, 1915.]

INTRODUCTORY.

The Mutooroo Pastoral Company has recently put down several trial bores on its property, situated near the intersection of 140° meridian of east longitude and 33° parallel of south latitude, a little to the south of Lilydale sheep-station, and about forty-two miles to the south-east of Yunta railway station. By the courtesy of Mr. L. Keith Ward, B.A., B.E., Government Geologist, my attention was called to these sinkings, and a small amount of fossiliferous material taken therefrom was placed in my hands for examination. The above company, through Mr. Ward, has also supplied information as to the strata passed through, based on the log kept by Messrs. Johnstone Bros., who were the contractors for the work.

In the map kindly supplied by Mr. Ward, and reproduced on the opposite page, the sites of the two bores are indicated.

Particulars of the Strata passed through in the Kruger Dam Bore:—

Nature of Strata.	Thickness in feet.	Depth from surface in feet.
Clay	11	11
Gravel	1	12
Rock	2	14
Gravel	3	17
Sand	12	29
Light-coloured Clay ...	7	36
Reddish and Light-coloured Clay	39	75
Lighter-coloured Reddish Clay	20	95
Dark-coloured Clay ...	17	112
Sand-rock	86	198
Bluish Clay	162	360
Bluish Clay with Shells ...	14	374
Sand and Water	8	382
Pipeclay	18	400

Bore abandoned at a depth of 400 feet.

Particulars of the Strata passed through in the Company's No. 4 Bore (Manunda Creek):—

Nature of Strata.	Thickness in feet.	Depth from surface in feet.
Red Clay	40	40
Yellow Clay	20	60
Sand	100	160
Sand	138	298
Sands with Shells (water)	2	300
Sandy Clay	18	318
Black Clay	7	325
Dark-brown Clay with Pipeclay	50	375
Light - coloured Brownish Clay with Pipeclay ...	35	410

Full depth of Bore, 410 feet.

REMARKS ON THE ABOVE SECTIONS.

Both the borings dealt with in this paper penetrated the fossiliferous marine beds, which are co-genetic with the fossiliferous Lower Cainozoic series of the Murray Plains, Gulf St. Vincent, and other localities in the southern portions of Australia. Their occurrence near Lilydale is of considerable interest as being the most northerly locality known for these beds in South Australia. As far back as 1876 beds of the same age were proved in a Government well that was sunk in a position about half-way between the Burra and the Nor'-west Bend of the River Murray—a distance of about thirty miles from either place. It is highly probable that, although obscured by a thick covering of recent sediments, the beds are continuous from Lilydale to the Murray Plains.

The locality where the bores are situated is evidently near the north-western limits of the marine series, as Mr. Ward informs me that "there is an outcrop of Cambrian slates in a wash-out beside the road, about three miles north of Lilydale station." It is possible, however, that, as the beds have undergone great denudation in the district, they may have originally transgressed the platform of older rocks much further to the north and west than their present limits.

From the particulars supplied, it is not quite clear as to the exact thickness of the marine beds in the two bores. In the Kruger Dam Bore blue clay with shells is recorded from the depths 360 feet to 374 feet, but it is possible that the blue clay noted from 198 feet to 360 feet may belong to the same marine series, and, if so, the thickness of the beds may amount to 76 feet. In No. 4 Bore the fossiliferous samples supplied to me included depths from 298 feet to 325 feet, or a thickness of 27 feet.

A point of interest is also seen in the occurrence of a considerable thickness of recent alluvium in each bore resting on the marine beds. In the case of the Kruger Dam Bore there are 200 feet of clays, sands, and gravels, and in No. 4 Bore similar deposits have a thickness of about 300 feet. At present the locality has no definite river channels, but the drainage is entirely local and disconnected. The upper, or fluviatile, portions in the respective bores probably represent antecedent river channels which were formerly connected with the older north and south drainage of the country. A sample of the deposits supplied to me from the level, 60-100 feet, in the No. 4 Bore consists of a clean white sand, the grains of which are fine to medium in size, and are almost exclusively composed of quartz, mostly of a transparent variety; the particles are rounded by attrition, especially the larger grains.

With reference to the fossiliferous horizons, the material that carries the organic remains in the Kruger Dam Bore is a tenacious blue clay, but in the washings there are [illegible] some extra large and rounded quartz grains that show a high degree of polish. In No. 4 Bore, the material from 298 feet to [illegible]0 feet is a dark-coloured clay; from 300 feet to 318 feet, a black to greenish-black clay; and from 318 feet to 325 feet, a black and very sticky mud. Each sample carries a considerable number of glauconitic granules, which, in many instances, have infiltrated foraminiferal shells and other organisms, or reduced them to pseudomorphs. The glauconite readily oxidises, by which the iron present, as a silicate, passes into a hydrous oxide of iron, or limonite, and becomes of a dark-brown colour. Most of the *Amphisteginae* present in the material have suffered such a change. Carbonaceous material is present in the form of black, cylindrical filaments or stems, some of which are pyritized.

THE ORGANIC REMAINS.

FORAMINIFERA.

It is interesting to note that the first material examined for microzoa from the Lower Cainozoic series of Australia was obtained from a locality situated about sixty miles due south of the bores now under description, which has been until now the furthest north for these beds in South Australia. In 1876, Mr. R. Etheridge, jun., then of Edinburgh, sent to Mr. H. B. Brady some material from a Government well that had been sunk about half-way (thirty miles) between the Burra Burra Mines and the Nor'-west Bend on the Murray. From this material Mr. Brady determined twenty-four species of Foraminifera; and his brother, Prof. G. S. Brady, four species of Ostracoda. The age of the beds was given, in error, as that of Post-Tertiary. [See Geolog. Mag., 1876, p. 334.]

In the following table the letters in the columns denote the relative number of examples present:—R, rare; RS, rather scarce; C, common; MC, moderately common; VC, very common.

NAME OF SPECIES.	Kruger Dam Bore.	No. 4 Bore.		
	374 ft.	298 to 300 ft.	300 to 318 ft.	318 to
Nubecularia lucifuga, Defr.	R			
Biloculina ringens, Lam., sp.	R			
,, *depressa*, d'Orb.			R	R
Miliolina seminulum, Linné, sp.	MC	R	MC	RS
vulgaris, d'Orb., sp.	C		MC	
venusta, Kar., sp.	MC		R	
cuvieriana, d'Orb., sp.	RS			
ferussacii, d'Orb., sp.			R	R
undosa, Kar., sp.	R		R	
oblonga, Montagu, sp.	R			R
agglutinans, d'Orb., sp.	C	R	C	R
Triloculina trigonula, d'Orb.	R			
,, *cuneata*, Kar.	C		MC	
,, ,, (biloculine variety)	MC	R		
,, *tricarinata*, d'Orb.				R
Spiroloculina grata, Terq. (feebly striated)	RS			R
,, *tenuis*, Czjzek, sp.		R		
Pentellina angularis, Howchin, sp.			V	
Sigmoilina (Planispirina) sigmoidea, Brady, sp.		R	RS	
Cornuspira involvens, Reuss		R	R	
Peneroplis arietinus, Batsch.			R	
Haplophragmium latidorsatum, Bornemann, sp.			R	
Textularia gibbosa, d'Orb.		R	RS	R
agglutinans, d'Orb.			RS	R
,, ,, var, *porrecta*, Brady	,,			
,, *gramen*, d'Orb.				R
Verneuilina triquetra, Münst., sp.			R	R
Tritaxia tricarinata, Reuss	RS		R	
Bulimina elegantissima, d'Orb.			R	
Clavulina parisiensis, d'Orb.			R	
Cassidulina subglobosa, Brady	MC	MC	C	R
Lagena hexagona, Will.			RS	R
,, *marginata*, W. and B., sp.			R	
,, *distoma*, P. and J.		R		
Nodosaria soluta, Reuss, sp.	RS	R		
,, *costulata*, Reuss	RS	R	R	
,, *obliqua*, Linn., sp.		R	R	
,, *scalaris*, Batsch., sp.			R	
,, *(Glandulina) aequalis*, Reuss			R	
Marginulina costata, Batsch, sp.			R	
Cristellaria cultrata, Montf., sp.	RS	R		
gibba, d'Orb.		R		

NAME OF SPECIES.	Kruger Dam Bore. 374 ft.	No. 4 Bore. 298 to 300 ft.	No. 4 Bore. 300 to 318 ft.	No. 4 Bore. 318 to 325 ft.
Polymorphina elegantissima, P. and J.	RS		MC	
,, *communis*, d'Orb.			RS	RS
,, *problema*, d'Orb.	R			
,, *gibba*, d'Orb.			R	
,, *regina*, B., P., and J.			R	
Pullenia sphaeroides, d'Orb., sp.				R
Discorbina turbo, d'Orb., sp.			R	
,, (?) *tabernacularis*, Brady			R	R
Planorbulina mediterranensis, d'Orb.	RS			
,, *larvata*, P. and J.	RS			
,, *acervalis*, Brady	R			
Truncatulina haidingerii, d'Orb., sp.	MC	R		
,, *lobatula*, W. and J., sp.		R	R	R
,, *wuellerstorfi*, Schw., sp.			R	R
,, *ungeriana*, d'Orb., sp.		VC	RS	C
,, *tenuimargo*, Brady				R
,, *reticulata*, Czjzek, sp.		RS	R	
Anomalina grosserugosa, Gumb., sp.			R	
,, *ammonoides*, Reuss, sp.				R
Pulvinulina oblonga, Will., sp.			R	
,, *elegans*, d'Orb., sp.			R	
,, *scabricula*, Chapman			MC	C
,, *tumida*, Brady		R		
Rotalia papillosa, var. *compressiuscula*, Brady	VC	RS	MC	VC
,, *schroeteriana*, P. and J.			C	
,, *soldanii*, d'Orb.			R	
,, *orbicularis*, d'Orb.				MC
Gypsina globulus, Reuss, sp.	R		R	
,, *vesicularis*, P. and J.	R			
Nonionina depressula, W. and J., sp.		R	RS	
,, *umbilicatula*, Montag., sp.		R		
Polystomella macella, F. and M., sp.			R	R
,, *crispa*, Linn., sp.			R	R
,, *craticulata*, F. and M., sp.			R	
,, *verriculata*, Brady			R	R
Amphistegina lessonii, d'Orb.			VC	VC
Operculina complanata, Defr., sp.	RS			

REMARKS ON SOME OF THE SPECIES.

Pentellina angularis, Howchin, sp.—The occurrence of this species in considerable numbers in No. 4 Bore is of some interest, as its only previous record is from the lower beds of Muddy Creek (Vic.), where the type specimen was obtained. The specimens, in the present instance, show the same defects by weathering of the final chambers as was seen in those obtained from the Muddy Creek material. It seems to be absent from the Kruger Dam Bore.

Discorbina (?) *tabernacularis*, Brady.—Two very small examples, obtained from the lower portion of No. 4 Bore, have been referred, with some reservation, to this species. They have the form of a symmetrical cone, with the inferior surface depressed. The presence of only two examples, and these of very minute size, makes a definite determination somewhat difficult.

Pulvinulina scabricula, Chapman. This form was described by Mr. Chapman from the Batesford Limestone (Moorabool River, Vic.). The examples from Lilydale are more deeply pitted than the type, and are moderately common in No. 4 bore.

Rotalia papillosa, var. *compressiuscula*, Brady.—Rotaliform shells with strongly-developed surface ornament occur in both bores, and, in varying numbers, at all depths examined. They may be said to be of *R. papillosa* type, but comprise variations from that form in the direction of other species. The most prevalent features are those of *R. papillosa*, var. *compressiuscula*, but some specimens show a close resemblance to *R. schroeteriana*, especially in No. 4 Bore, at 300 feet to 318 feet horizon. In the Kruger Dam Bore, and also in No. 4 Bore to some extent, strongly-built examples occur which approximate to the *R. clathrata*, Brady, style of ornament, but with some differences. In this latter case the segments of the inferior side are angulated, radially, as ridges, and are marked by a strong limbation, while between the limbate ridges are numerous transverse ridges. In some specimens, again, one to three spines are developed on the peripheral margin, akin to those in *R. calcar*, d'Orb. The variations indicated above may be but varietal in their occurrence, or fuller research may give them a specific value.

Polystomella verriculata, Brady.—Two examples of this very distinct and interesting species were obtained from the lower portion of No. 4 Bore. It also occurred sparingly in the lower beds of Muddy Creek.

Amphistegina lessonii, d'Orb.—This form is very abundant in the lower levels of No. 4 Bore, but appears to be absent from the upper levels, as well as from the Kruger Dam Bore. This restricted distribution, limiting an abundant form to one particular horizon, is somewhat remarkable, and may have some geological significance. The specimens attained fairly large size, but are not equal, in this respect, to the very large examples of this species which occur at Muddy Creek. Like those found in the last-named locality they have been altered to brown ocherous-pseudomorphs.

The Foraminifera in the above list number about seventy-nine species, and, on the whole, exhibit a facies that shows relationship with the Muddy Creek (Vic.) lower beds (Balcombian), rather than with the Adelaide and Aldinga

(Janjukian) beds. This is especially seen in such species as *Amphistegina lessonii* and *Pentellina angularis*, which are present in considerable numbers both in the Muddy Creek and Lilydale material, as well as by *Polystomella verriculata*, in lesser numbers, none of which species has been recorded from the beds in the Adelaide district. Muddy Creek lies on the eastern side of the Murray Basin and Lilydale is situated almost on its extreme western limits, yet this agreement in the foraminiferal fauna of the two localities may indicate a stratigraphical co-ordination and similar geological horizon for the respective beds.

The height of the Lilydale bores above sea-level has not been accurately determined, but Yunta, the nearest railway station, at a distance of forty-two miles, is 992 feet above the sea. Lilydale is probably a little lower than that.

ORGANIC REMAINS OTHER THAN THE FORAMINIFERA.

PORIFERA: --

A few tri-radiate sponge spicules.

ACTINOZOA: —

Placotrochus deltoideus, Duncan (small and worn specimens).
Amphihelia striata, T. Woods (one weathered fragment).

POLYZOA: —

Numerous genera and species.

PELECYPODA: —

Cardium, sp. (young).
Cardita scabrosa, Tate (young).
Lucina affinis, Tate.
Limopsis insolita, Sow.
Trigonia, sp. (broken fragments, including teeth).

SCAPHOPODA: —

Dentalium mantelli, Zittel. (fragments).

GASTEROPODA: —

Turritella aldingae, Tate.
Erato minor, Tate.
(?) *Drillia* (several young examples).
Opercula (calcareous, probably of *Turbo*).

OSTRACODA: —

Not uncommon; several genera as well as species.

PISCES: —

Ichthyolites in the form of small bones.

SOME NEW RECORDS OF FUNGI FOR SOUTH AUSTRALIA.

By T. G. B. Osborn, M.Sc., Professor of Botany, University of Adelaide.

[Read September 9, 1915.]

The fungi of South Australia have hitherto been neglected as a field of study, as indeed have most of the cryptogams. In the present note some forty species are recorded, the occurrence of which I cannot find in the literature, though many are common—a few exceedingly so. The majority have already been recorded from the other States, but five have not, so far as I am aware, been recorded for Australia before. One of these occurred on a native plant in the field; the remainder are pathogenic fungi attacking various cultivated plants, that have no doubt been imported with the seed or by other means. Fortunately, none of them promises to be very serious, but the fact that they have been introduced serves to show how necessary are the Commonwealth regulations governing the importation of plants—regulations that have hitherto been successful in preventing the introduction of several of the more serious European and American diseases of cultivated plants. However, one of these new Australian records merits special mention. It is the fungus causing a wilt of tomato plants, that I have provisionally referred to *Entorrhiza (Schinzia) solani*, Faut. *Entorrhiza solani* was briefly described by F. Fautrey in the "Revue Mycologique" for 1896 as causing a wilt of potato plants, but no further account having appeared, Sorauer ("Handbuch der Pflanzenkrankheiten," 3rd ed., vol. ii., p. 335) regards the results with scepticism. The symptoms described for the wilt of tomatoes and the occurrence and appearance of the spores agree closely with Fautrey's account of the potato disease, so that for the present I have referred the fungus to his species.

"The Fungus Flora of Australia," by Dr. M C. Cooke, appeared in 1892, but three years later a somewhat more complete list was published by McAlpine. I have, therefore, given references to the latter by number where possible, to render it easy to ascertain the range of a species in the other States. Where more recent works of reference upon special groups of Australian fungi have appeared these are also cited.

It is a pleasure to express my thanks to Mr. C. C. Brittlebank, of Melbourne, who has helped me not a little by referring to literature not available in South Australia and checking certain determinations by material in the herbarium of the Agricultural Department of Victoria. The *Hendersonia* on *Eleocharis* was determined by him.

Uromyces fusisporus, Cke. and Mass.—On living phyllodes of *Acacia pycnantha*, Benth. Burnside, May 9, 1914, iii. Belair, May 11, 1914, ii. and iii. M., 1450 (1). Rusts, p. 94 (2).

Uromyces microtidis, Cke.—On living leaf of *Microtis porrifolia*, R. Br. National Park, Belair, October 2, 1912, iii. M., 1454. Rusts, p. 88. The only record given by McAlpine is Bullahdelah, New South Wales.

Uromyces striatus, Schröt.—On living leaves of *Medicago sativa*, L. Fullarton, March, 1915 (C. E. Stephens), ii. and iii. Recorded for New South Wales, 2nd Report, Bur. Microbiology, Sydney, 1912.

Uromyces tricorynes, McAlp.—On stems of *Tricoryne elatior*, R. Br. Parakie, October 17, 1913, ii. and iii. Rusts, p. 87.

Uromycladium simplex, McAlp.—On living phyllodes of *Acacia pycnantha*, Benth. Burnside, May 9, 1914, iii. Belair, May 11, 1914, iii. Rusts, p. 110.

Puccinia dampierae, Syd.—On living stems and leaves of *Dampiera rosmarinifolia*, Schl. Longwood, September 28, 1914 (Miss A. H. Rennie), i. and iii. The aecidia were only found upon the leaves. Rusts, p. 146.

Puccinia epilobii-tetragoni (D.C.), Wint. On living stems and leaves of *Epilobium glabellum*, Forst. Brighton sand dunes, February 28, 1914, i., ii., and iii. M., 1473. Rusts, p. 170.

Puccinia hederaceae, McAlp.—On living leaves of *Viola betonicifolia*, Sm. Burnside, May 9, 1914, ii. and iii. M., 1466, as *P. aegra*, Grove. Rusts, p. 183.

Puccinia helianthi, Schw.—On living leaves and bracts of *Helianthus annuus*, L. Adelaide, fairly common, January-April, ii. and iii. M., 1476. Rusts, p. 158.

Puccinia hypochoeridis, Oud.—On living leaves of *Hypochoeris radicata*, L. Morialta Falls Reserve, September 13, 1913, ii. and iii. Rusts, p. 159.

Puccinia juncophila, Cke. and Mass.—On living stems of *Juncus*, sp. Glenelg River, January, 1913, ii. and iii. M., 1479. Rusts, p. 136.

---

(1) M. 1450 refers to the number assigned to the species in the "Systematic Arrangement of Australian Fungi," by D. McAlpine, Melbourne, 1895.

(2) "The Rusts of Australia," by D. McAlpine, Melbourne, 1906.

Puccinia morrisoni, McAlp.—On living leaves of *Pelagonium australe*, Jacq. Victor Harbour sand dunes, November 5, 1913, ii. and iii. Henley Beach sand dunes, January, 1914, ii. and iii. Rusts, p. 180.

Puccinia poarum, Niels.—On living leaves of *Poa annua*, L. Adelaide, October 17, 1913, ii. M., 1489. Rusts, p. 128.

Puccinia tasmanica, Diet. -On living stems and leaves of *Senicio vulgaris*, L. Mitcham, October, 1912, i. and iii. Adelaide, August, 1913, i. Rusts, p. 163.

Puccinia tetragoniae, McAlp.—On living leaves of *Tetragonia implexicoma*, Hook f. Granite Island, Victor Harbour, August 23, 1915, i. Rusts, p. 173.

Puccinia thuemeni (Thuemen), McAlp.—On living leaves of *Apium graveolens*, L. Mount Lofty, November 10, 1912, iii. M., 1468. Rusts, p. 168.

Cintractia sorghi-vulgaris (Tul.), Clint.—In the ovaries of *Andropogon sorghum*, Brot. Roseworthy, February, 1915 (C. F. Stephens). McAlpine, "Smuts of Australia," 1910, p. 173.

Entorrhiza (Schinzia) solani, Faut.—In the roots and base of the stem of *Lycopersicum esculentum*, causing a wilt and final death of the infected plants. Fungus provisionally referred to the species. Crystal Brook, June, 1914. *Entorrhiza solani* was described by E. Fautrey in the "Rev. Mycol.," 1896, p. 11, as causing a new disease of potatoes. The account was brief, and since then no further investigation of the fungus has, so far as I am aware, been undertaken. It has not been recorded in Australia before, nor have I heard of its occurrence in another part of the State.

Taphrina aurea, Fries.—On living leaves of *Populus pyramidalis*, Salisb. Balhannah, October 30, 1913 (Geo. Quinn). I have not been able to trace the published record of *Taphrina aurea* in Australia. Mr. Brittlebank informs me the herbarium of the Department of Agriculture, Melbourne, has a specimen from South Australia, dated 1901, while he found it in 1883, but it does not appear in McAlpine's list. It is not common in this State, but is found occasionally on trees in the gullies of the Mount Lofty Range.

Sphaerotheca pannosa, Lev.—On living leaves, stems, and flower-buds of *Rosa*, sp. Adelaide, common, May-October. M., 1722.

Erysiphe graminis, D.C.—Infesting the basal leaf sheaths of wheat plants. Adelaide, August, 1913. Caulfield, October, 1913. M., 1724.

Poronia punctata, Fries.—Decayed horse dung. The Hermitage, October 9, 1912. M., 1599.

Sclerotinia libertiana, Fuck.—On living leaves of lettuce, causing a "drop" disease. The sclerotia only were found. "Journal of Agriculture," vol. xvi., 1913, p. 1080. Sturt Creek, April, 1913 (C. H. Beaumont). This well-known European and American disease of cultivated lettuce plants has not, so far as I am aware, been recorded in Australia before. [(?) Report, Pathologist Dept. of Agric., Victoria (in the press).]

Pseudopeziza medicaginis (Lib.), Sacc.—On living leaves and stems of *Medicago sativa*, L. "Journal of Agriculture," South Australia, vol. xvii., p. 294, 1913. Turretfield, December 23, 1912. M., 1894.

Peronospora schleideni, Ung.—On living plants of the cultivated onion, *Allium cepa*, L., causing a wilt. Longwood, July 24, 1915., per Horticultural Branch of Department of Agriculture, South Australia. M., 2202.

·*Empusa muscae*, Cohn.—On bodies of dead house-flies. Adelaide, May, 1915 (Miss A. H. Rennie). Torrensville, May, 1915 (Miss M. M. Poynton). M., 2203.

Ascochyta corticola, McAlp.—On the bark of living navel orange tree, causing necrosis of the tissues. Buckland Park, June, 1915. McAlpine, "Fungus Diseases of Citrus Trees," Melbourne, 1899, p. 110.

Actinonema rosae, Fries.—On living leaves of *Rosa*, sp. The Hermitage, October 7, 1912. M., 2086.

Hendersonia scerpicola, Cke. and Hark.—Living stems of *Eleocharis sphacelata*, R. Br.—Black Swamp, May 29, 1914.

Septoria petroselini, Desm.—Causing dry spots to appear on the leaves of cultivated parsley, *Carum petroselinum*, Benth. and Hook, f. Mount Lofty, November, 1912.

Septoria petroselini, Desm., var. *apii*, Br. and Cav.—Causing the leaf-scorch disease of celery, *Apium graviolens*, L. On living stems, leaves, and fruits. "Journal of Agriculture," South Australia, vol. xvi., p. 1, 1912. Mount Gambier, July, 1912. Adelaide, July, 1913. Recorded for New South Wales, 2nd Report, Bur. Microbiology, Sydney, 1912.

Septoria rubi, West.—Causing spots on the leaves of *Rubus fruticosus*, L. The Hermitage, October 7, 1912.

Septoria tritici, Desm.—Causing appearance of elongated spots on the basal leaves of wheat plants. Probably widely distributed. Parafield, October, 1912. Aldinga, September, 1913. M., 2100.

Gloeosporium nervisequum, Fuck.—Causing brown spots, especially along the veins of living leaves of *Platanus orientalis*, L. Adelaide, October, 1912; common each year. Mount Lofty, November, 1912. "Jour. Agric.," Victoria, vol. xii., p. 335, 1914.

Gloeosporium mezerei, Cke. and Mass.—Causing brown spots on the living leaves of *Daphne mezereum*, L. Adelaide, June, 1915. Not hitherto recorded in Australia.

Colletotrichum lindemuthianum (Sacc, and Mag.), Schr.—Causing discoloured spots (anthracnose) of stems and leaves of living broadbean plants, *Vicia faba*, L. Adelaide, July, 1915. M., 2133.

Oospora scabies, Thax.—Present as a greyish evanescent mould upon some scabbed potatoes. "Journal of Agriculture," South Australia, vol. xvi., p. 191. Gumeracha, November, 1912, 1913. Blackwood, April, 1914. McAlpine, "Diseases of Potato Plants in Australia," 1912.

Fusicladium eriobotryae.—On living leaves, stems, and fruits of loquat, *Eriobotrya japonica*, Lindl. Scott's Creek, October, 1912.

Alternaria solani (E. and M.), Jones and Grant.—On living leaves of potato; general. McAlpine, "Potato Diseases."

THE LEPIDOPTERA OF BROKEN HILL, NEW SOUTH WALES.
PART I.

By OSWALD B. LOWER, F.Z.S., F.E.S., etc.

[Read October 14, 1915.]

The Broken Hill district is a dry belt of country situated about 334 miles from Adelaide, the nearest coastal port being Port Pirie, about 250 miles distant. The rainfall has an average of about 8 inches. The surface of the district consists of low ranges of hills, with intervening sandy alluvial plains, the rocks exposed being largely composed of an ancient system of limestone and boulder beds, and although the district has been characterized as a desert, the appellation is a misnomer, as during a good rainy season the herbage flourishes to an astonishing degree of prolific activity.

The flora is largely composed of representatives of the *Cruciferae (Blennodia*, etc.), *Malvaceae (Lavatera, Gomphrena*, etc.), *Myoporinae (Eremophila), Sapindaceae (Dodonoea), Salsolaceae (Kochia, Bassia), Compositae (Helichrysum), Leguminosae (Cassia, Acacia), Myrtaceae*, the mulga *(Acacia aneura)*, and gum, *Eucalyptus rostrata*, being predominant in the area under notice, whilst the generic names in parentheses indicate those more commonly met with.

The climate during the summer period, *i.e.*, November to February, is rather trying, but the remainder of the year is mild and bracing, the mean temperature being, according to J. B. Jacquet, about 65·5° F.

The insect fauna is tolerably well represented; amongst the Neuroptera, Orthoptera, and Myrmelionidae I have secured several novelties. The Coleoptera are mostly represented by members of the *Carabidae, Tenebrionidae, Buprestidae, Curculionidae*, and *Scarabaeidae*. The Lepidoptera of the district is particularly interesting, affording, as it does, an insight into the peculiar, and in many instances probably locally endemic, species of this hitherto unexplored region. It has produced some startling discoveries, not only in the large percentage of new species, but in the geographical distribution of others well known. A large proportion of the species herein enumerated are to the best of my knowledge endemic of the district, and the number of new genera and species adduce an important aspect as to what the inland portion of the continent may be expected to yield during the course of further search. One noticeable characteristic is the entire absence of the *Hesperiadae*, the absence of *Cladium* no doubt being responsible for such. Another notable peculiarity is the large number of single stragglers which I secured from time to time; nearly all the world-wide species have been taken here, introduced no doubt through agency of merchandise which finds its way here from every portion of the globe. Especially is this applicable to *Deilephila euphorbiae*, a living specimen which Mr. J. Fairhead secured in the mail-room of our local post office. The principal area from which the collection has been made does not extend beyond five miles of the town itself, and doubtless many more interesting species remain yet to be discovered, especially along the river district.

In forming the collection I encountered at once the difficulty of having no scrub or undergrowth within fifty miles of the town, and the continuous devastation of the remaining scrub and low herbage by grazing, etc., and the removal of street trees—mostly *Eucalypti*—have added to the difficulties of collecting. A large proportion of those enumerated were taken at light, but the advent of the electric street lights, with the lamps fully 15 to 20 feet from the ground, have not made the acquisition of specimens any easier. The result of my labours, however, has been more than compensated by the discovery of so many new forms. I think I can claim the unique distinction of having compiled the first authentic list of species distributed in Central Australia, and although I have the advantage of my critics by being on the spot, I sincerely trust that those who in due course add to the catalogue will find nothing to cavil at in its contents, but prove its utility to be of such importance as to justify its publication. The types of the new species are in my collection

Family AMATIDAE.

The name *Amata*, Fab., having priority over *Syntomis*, Ochs , the name of the family is altered accordingly. The three undermentioned species of the family are only stragglers.

1. Amata xanthosoma, Turn.

Two specimens near Tibooburra, in January.

2. Amata clementsi, Hmpsn.

One abraded specimen at light, in February.

3. Amata magistri, Turn.

Four specimens, in January.

Family ARCTIADAE.

Subfamily NOLINAE.

4. Celama albalis, Wlk.

Four specimens, in October.

5. Roeselia lugens, Wlk.

Taken occasionally during September and March, at light.

6. Zia tactalis, Wlk.

Three specimens, in August.

7. Ctenosia infuscata, Low.

Two specimens, in April.

8. Scoliacma bicolor, Bdv.

One specimen from Wilcannia, without date.

9. Ilema replana, Lewin.

One specimen, in March.

10. Halone sejuncta, Feld.

Taken occasionally in October and November.

11. Halone sinuata, Wllgrn.

Not uncommon in July and August.

12. Caprimima procrena, Meyr.

Four specimens, in November.

13. Poliodule xanthodelta, Low.

Generally common in September, October, and November. I have not yet succeeded in discovering the female, which is probably apterous. The generic name is misprinted *Poliodula* in Hampson's Catalogue.

14. Xanthodule ombrophanes, Meyr.

Rather common in September and October. I also take the form *inquinata*, Lucas, and have received it commonly from Wompah, on the Queensland border.

15. Xanthodule semiochrea, Butl.

Two specimens, in November.

16. Asura lydia, Don.

Five specimens, taken at Tarrawingee in March and April. The specimens are dwarfed, with the medial black band of hindwings absent.

17. Thallarcha albicollis, Feld.

Taken occasionally, at light, during November.

18. Thallarcha sparsana, Wlk.

Not uncommon, at light, during September and October. The specimens taken here are larger than those from Queensland, and with the hindwings more orange.

19. Thallarcha jocularis, Rosenst.

Three specimens, at light, in March.

20. Thallarcha rhaptophora, n. sp.

♂, 22 mm. Head and palpi yellow. Thorax fuscous, patagia pale-yellow. Antennae fuscous. Legs fuscous, posterior pair pale-yellow. Abdomen pale-yellow, somewhat infuscated beneath in middle. Forewings elongate-triangular, costa hardly arched, termen obliquely rounded; white, with blackish markings; a small spot at base of wing; a narrow outwardly oblique dentate fascia, from costa at one-sixth to fold; a round spot just above dorsum at one-fifth; a double dentate fine line from before middle of costa to middle of dorsum, followed on its posterior edge by an interrupted narrow dentate shade, most prominent on costa; a twice outwardly sinuate, somewhat dot-like line, from costa at about four-fifths to dorsum before anal angle, more or less interrupted on lower third; an elongate mark above middle, between dot-like line and shade, indented on posterior edge; a rather thick shade, from costa near apex, where it is dilated, to anal angle, twice excurved at and above middle, both anteriorly and posteriorly, and sometimes interrupted above anal angle; a row of round dots along termen; cilia dark-fuscous, with an ochreous tooth above middle and anal angle. Hindwings yellow; an elongate fuscous discal spot, above and beyond middle; a moderate fuscous apical patch extending to middle of termen, thence continued as a fine line to near anal angle; cilia pale-yellow.

Between *isophragma*, Meyr, and *jocularis*, Rosenst.

Two specimens, taken in November.

21. Thallarcha catasticta, n. sp.

♂, 18 mm. Head white. Palpi fuscous, internally whitish at base. Thorax fuscous, patagia white. Antennae fuscous. Legs fuscous, posterior pair ochreous-yellow. Abdomen yellowish-orange, deeper orange beneath. Forewings very elongate triangular, costa hardly arched, termen obliquely rounded; white, with fuscous markings; a small spot at base of wing; three more or less confluent spots, forming a narrow outwardly oblique band, from costa at about one-fifth to middle of wing; a small spot just above dorsum, and anterior to termination of band; a narrow dentate fascia from middle of costa to middle of dorsum, sharply sinuate inwards above middle; a twice outwardly sinuate narrow line from five-sixths of costa to just before anal angle, becoming interrupted and dot-like on lower third; an elongate discal spot above middle, between median and last line, but nearer the latter; a short oblique dash from costa near apex, nearly reaching first sinuation of last line; a row of hind-marginal dots; cilia pale-yellow. Hindwings very pale-yellow; a fuscous elongate discal spot above and beyond middle; a pale-fuscous apical patch, obscurely continued along termen to middle; cilia pale-yellow.

One specimen, in November. I have seen a specimen from Birchip, Victoria.

22. CASTULO GRATIOSA, Wlk.

Three specimens, in October; these appear to fluctuate between *gratiosa*, Wlk., and *zonophanes*, Meyr., the median band of forewings being nearly filled in with fuscous, and the post-medial band as broad as in *zonophanes*. Perhaps a further series may indicate a new species.

23. CASTULO LAETA, Wlk.

A single specimen, of the form *xanthomelas*, Low., taken in November; the bands of forewings are much broader than the type, and strikingly approach *shepherdi*, Newm.

Subfamily ARCTIANAE.

24. ARDICES GLATIGNYI, Le-Guill.

Taken occasionally, in November.

25. CREMNOPHORA ANGASI, Wlk.

Not uncommon in the spring and in March.

26. UTETHEISA PULCHELLA, Linn.

Common from September to April.

Subfamily AGARISTIDAE.

27. CRURIA DONOVANI, Bdv.

I have a single battered specimen, taken at Balaclava, near Broken Hill, in January. As some species of this group are said to feed on *Loranthus*, and as this plant is abundant here, it is curious that the family is not more freely represented.

NOCTUINA.

This group is well represented here, and I possess several species which are probably new, but not in a fit condition for description. The genera *Omphaletis* and *Ariathisa* are most abundant, but nearly every family is represented.

Subfamily AGROTINAE.

28. NEOCLEPTRIA PUNCTIFERA, Wlk.

Tolerably common in October and November.

29. CHLORIDEA OBSOLETA, Fab.

Common from August to December, also in April. This species has stood for years as *armigera*, Hüb.

30. MELICEPTRIA MESOLEUCA, Low.

Five specimens, in March.

31. MELICEPTRIA PALLIDA, Butl.

Two specimens, in March.

32. BUCIARIA BIPARTITA, Wlk.

Three specimens, March and April.

33. EUXOA RADIANS, Gn.

Very common in August to November, and again from March to May.

EUXOA INFUSA, Bdv.

Not uncommon in September and October.

35. EUXOA PORPHYRICOLLIS, Gn.

Taken occasionally in March.

36. EUXOA RECLUSA, Wlk.

Taken at rare intervals, in March.

37. AGROTIS COMPTA, Wlk.

Several specimens, September and October.

38. **Agrotis spina**, Gn.

Several specimens, September and October.

39. **Proteuxoa mniodes**, Low.

A rare species, two specimens in November.

40. **Propatria mundoides**, Low.

Rather common from September to November.

41. **Ectopatria aspera**, Wlk.

Taken occasionally in October.

42. **Polia consanguis**, Gn.

Not uncommon in October.

43. **Persectania ewingii**, Westw.

Taken occasionally in October.

44. **Dasygaster eutherma**, Low.

Five specimens, in March.

45. **Cirphis uda**, Gn.

Two specimens, in March.

46. **Cirphis leucosta**, Low.

One abraded specimen, in May.

47. **Cirphis loreyi**, Dup.

Not uncommon in March and April.

48. **Cirphis ciliata**, Wlk.

Two specimens, in October.

19 **Cirphis unipuncta**, Haw.

Tolerably common in April and May.

Subfamily CUCULLIANAE.

50. **Eumichthis sepultrix**, Gn.

Five specimens, in October.

51. **Eumichthis saliaris**, Gn.

Rather uncommon, in October.

52. **Peripyra sanguinipuncta**, Gn.

One specimen, in October.

53. **Cosmodes elegans**, Don.

Not uncommon during September and October.

54. **Spodoptera mauritia**, Bdv.

Four specimens, in October.

55. **Laphygma exempta**, Wlk.

Two specimens, in November.

56. **Laphygma exigua**, Hüb

Very common, especially at light, August to November.

57. **Prometopus horologa**, Meyr.

Tolerably common in March.

58. **Eremochroa macropa**, Low.

Not uncommon in March and April, the male preponderating.

59. **Eremochroa paradesma**, Low.

Several specimens, in May.

60. **Eremochroa alphitias**, Meyr.

Several specimens, in April.

61. **Eremochroa thermidora**, Hmpsn.

A scarce species, two specimens in September.

62. **Micropia rhodocentra**, Low.

A scarce species, two specimens in April.

63. **Omphaletis florescens**, Wlk.

An abundant species, September to November and March.

64. **Omphaletis exundans**, Gn.

One specimen, in May.

65. **Omphaletis heliosema**, Low.

Very common in September, October, and March.

66. **Omphaletis nuna**, Gn.

Rather common in March and April.

67. **Omphaletis melodora**, Low.

Common during October and November, and again in April.

68. OMPHALETIS METANEURA, Low.

Not uncommon in March and April.

69. OMPHALETIS SARCOMORPHA, Low.

A scarce species; two specimens, in April.

70. OMPHALETIS PETRODORA, Low.

Two specimens, in March.

71. OMPHALETIS (?) ACONTOURA, n. sp.

♀, 30 mm. Head, palpi, antennae, and thorax smoky-brown, palpi dull-ochreous beneath, abdomen rather dark-fuscous. Legs fuscous, mixed with whitish. Forewings elongate-triangular, termen gently rounded; smoky-brown, with black markings; a thick streak along submedian fold, from near base to before middle, posteriorly attenuated; a thick similar streak in middle of cell throughout; a row of black dots along termen; cilia smoky-brown. Hindwings with termen rounded, faintly waved; light-fuscous; cilia grey, with a fuscous sub-basal line.

In the absence of the male, the generic location is uncertain.

One specimen, in October, at light.

72. OMPHALETIS SPODOCHROA, n. sp.

♂, ♀; 24, 28 mm. Head and antennae fuscous, face whitish-ochreous. Palpi ochreous-whitish, second joint infuscated laterally. Thorax ashy-grey-whitish, anteriorly with a narrow fuscous band, collar rufous. Abdomen greyish-ochreous. Legs greyish-white, tarsi fuscous, banded with ochreous. Forewings elongate-triangular, termen gently rounded; ashy-grey-whitish; all lines obsolete; orbicular small, reddish-ochreous; reniform white, moderate, edged on either side with reddish-ferruginous, and with a small blackish shade on lower lobe; an obscure reddish sub-basal median spot; three equidistant black dots on costa, first close to base, from which emerge faint indications of sub-basal line, second at one-quarter; third at about middle; faint indications of a waved fuscous subterminal line; a row of fuscous-ferruginous dots along termen; cilia dark-fuscous; terminal half greyish-ochreous.

Near *sarcomorpha*, Low.

Seven specimens, in March.

73. ARIATHISA COELENOPTERA, n. sp.

♂, ♀, 34 mm. Head and thorax blackish, slightly irrorated with whitish. Palpi ochreous-whitish, base of second and upper edge of terminal joint black. Antennae fuscous. Abdomen grey, beneath infuscated. Legs fuscous, banded with ochreous-white. Forewings elongate-triangular, termen rounded, faintly waved; dark-fuscous, mixed with black, and sparsely irrorated with whitish; sub-basal line black, hardly traceable; antemedial line waved, black, double, from costa at one-quarter to dorsum at one-third; orbicular white; reniform large, pale-yellow, with an irregular blackish patch in lower lobe; postmedian line dentate, becoming double on lower half; subterminal line waved, ochreous; space between postmedian and subterminal very dark-fuscous, with veins outlined in black on space; six or seven ochreous-white costal dots, first at commencement of antemedial line, last on middle of dark-fuscous groundcolour, one above reniform largest; a waved black line along termen, preceded by a row of ochreous interneural spots; cilia fuscous, basal half ochreous, with a row of black median spots at extremities of veins. Hindwings with termen rounded, faintly waved: white, becoming infuscated on apical third; a fuscous discal lunule; a fuscous waved line along termen; cilia white, mixed with fuscous at apex.

Nearest *cornuta*, Low.

Five specimens, in March; also from Pinnaroo, South Australia.

74. ARIATHISA ENDESMA, Low.

Several specimens, November and April.

75. ARIATHISA CORNUTA, Low.

One specimen, in March.

76. ARIATHISA EUCHROA, Low.

Four specimens, in March.

77. ARIATHISA ANGASI, Feld.

Five specimens, in April.

78. ARIATHISA TORTISIGNA, Wlk.

Three specimens, in March and April.

79. ARIATHISA CHRYSOSPILA, Low.

Not uncommon in March and April.

80. ARIATHISA PARAGYPSA, Low.

Two specimens, in April.

81. ARIATHISA GYPSINA, Low.

Fourteen specimens, in March and April.

82. ARIATHISA PARATORNA, Low.

Not uncommon in March.

83. ARIATHISA ETONIANA, Low.

Taken occasionally in March.

84. ARIATHISA HYDRAECIOIDES, Gn.

Nineteen specimens, in March and April.

85. ARIATHISA MICROSPILA, Low.

Rather common during April and May.

86. ARIATHISA ATMOSCOPA, Low.

A rare species; three specimens, in April.

87. ARIATHISA CONFINIS, Wlk.

Not uncommon in March.

88. ARIATHISA CAPULARIS, Gn.

Rather a scarce species, taken in March.

89. ARIATHISA ATRA, Gn.

Five specimens, in March.

90. ARIATHISA MICRODES, Low.

A winter species, rather common from April to July.

91. ARIATHISA HETEROGAMA, Low.

See page 374.

92. ARIATHISA MONOCHROA, Low.

Two poor specimens, in May.

93. ARIATHISA ADELPHODES, Low.

Taken occasionally in April.

94. ARIATHISA INTERFERENS, Wlk.

One imperfect specimen, in March.

95. ARIATHISA FLEXIRENA, Wlk.

Two specimens, in October.

96. HYPOPERIGEA TONSA, Gn.

One specimen, in March, somewhat worn.

97. PROXENUS TENUIS, Butl.

Common during September and November.

98. PHRAGMATIPHILA TRUNCATA, Wlk.
A single specimen, taken in March.

99. CHASMINA PULCHRA, Wlk.
A single specimen, in October.

Subfamily ERASTRIANAE.

100. EUBLEMMA ANACHORESIS, Wllgrn.
Two specimens, in October.

101. EUBLEMMA COCHYLIOIDES, Gn.
Not uncommon in September.

102. EUBLEMMA RIVULA, Moore.
Common from August to November.

103. EUBLEMMA DUBIA, Butl.
Common at light, in October.

104. EUSTROTIA AMORPHA, Butl.
Three specimens, in October.

105. EUSTROTIA RITSEMAE, Snell.
Two specimens (worn), in October.

106. EULOCASTRA EURYNIPHA, Turn.
Tolerably common during October and November.

107. TARACHE NIVIPICTA, Butl.
Four specimens, in October.

108. TARACHE HIEROGLYPHICA, Low.
Rather common in October and November.

109. TARACHE CLERANA, Low.
Several specimens, in October.

Subfamily EUTELIANAE.

110. PATAETA CARBO, Gn.
A single specimen, in March.

111. PATAETA CONSPICIENDA, Wlk.
Taken at rare intervals during March and April.

Subfamily ACONTIANAE.

112. Earias huegeli, Rogenh.

Fourteen specimens, March to May.

113. Earias parallela, Lucas.

One of the commonest species in September and October, and again in March.

114. Earias ochrophylla, Turn.

Also very common during September, October, and November, and again in March and April.

115. Armactica conchidia, Butl.

Taken occasionally in February and March. The sexes are somewhat dissimilar.

Subfamily CATOCALINAE.

116. Niguza habroscopa, n. sp.

♂, 42 mm. Head, palpi, antennae, and thorax smoky-brown, thorax with an anterior snow-white band. Abdomen reddish-orange, with blackish segmental bands on basal half and with blackish lateral tufts; beneath ochreous with whitish segmental bands. Legs dark-fuscous, middle and posterior tarsi spotted with ochreous. Forewings elongate-triangular, termen rounded, slightly waved; smoky-brown with snow-white markings; two orange basal spots, on costa and submedian fold; a moderately broad transverse fascia, from costa at one-fifth to dorsum at about one-quarter, curved obliquely outwards on upper third, and below middle, and with a rounded projection outwards in middle, which contains an elongate streak of groundcolour; a similar fascia, from costa at five-sixths to dorsum before anal angle, curved obliquely outwards on upper third, thence obliquely inwards to termination, from the anterior edge of the fascia spring two snow-white circular lines encircling the large discoidal ocellus, which is metallic-purple, surrounded completely with lines of orange and black respectively, and containing a fine streak of orange from posterior edge above middle; beyond the second transverse fascia is a narrow metallic-purple somewhat interrupted line throughout; this is followed by a parallel series of orange triangular moderate spots, upper three becoming ferruginous, this is again followed by a parallel series of moderately large snow-white triangular spots, their apices directed inwards; a fine waved fuscous subterminal line, followed by a thick parallel shade of grey-whitish throughout, except at tornus, where it is white; a fuscous waved line along termen; cilia light-fuscous. Hindwings with termen rounded; snow-white; a large, somewhat quadrate discal spot; subterminal metallic line and orange and white triangular spots as in forewings, but the orange spots are the largest, and white small, being the reverse of those on forewings; submarginal and line along termen as in forewings; cilia as in forewings.

Allied to *anisogramma*, Low., but apart from the larger size, two transverse oblique fasciae, besides other details, are sufficient to ensure its distinctiveness. It is a very beautiful and striking insect.

One specimen, at light, in March.

117. NIGUZA ANISOGRAMMA, Low.

Two specimens, at light, in November.

118. GRAMMODES OCELLATA, Tepp.

Taken occasionally in March and April, usually at light. The specimens are much larger than those taken at Adelaide.

119. GRAMMODES OCULICOLA, Walk.

Five specimens, taken in April.

120. GRAMMODES PULCHERRIMA, Lucas.

Taken occasionally in March.

121. MOCIS ALTERNA, Wlk.

Taken at rare intervals during November and December.

122. DONUCA SPECTABILIS, Wlk.

Taken occasionally, at rest on *Eucalyptus* trunks, in March and October.

123. ANUA PARCEMACULA, Lucas.

Two specimens, in March, beaten from *Eucalyptus*.

124. ANUA TIRHACA, Cram.

I have bred this species (the var. *separans*, Walk., xiv., 1357) from a larva feeding on "pepper tree" *(Schinus molle)*, and as that tree is superabundant here, the insect may possibly in due course become common. I have also taken two specimens in March, at which period the imago emerged.

125. ACHAEA JANATA, Linn.

Four specimens, taken between October and March, all probably belonging to the var. *argilla*, Swin. I have also received two specimens of the same type from Alice Springs, Central South Australia. The insect has been known for many years as *melicerta*, Dru., but the Linnean name has priority.

Subfamily PHYTOMETRINAE.

126. **Phytometra chalcytes**, Esp.

Taken occasionally in October and November.

127. **Phytometra argentifera**, Gn.

Common in August and November, and again in March.

128. **Phytometra subsidens**, Wlk.

Three specimens, in March.

Subfamily NOCTUINAE.

129. **Polydesma submurina**, Wlk.

Taken occasionally at light during October and November.

130. **Polydesma lawsoni**, Feld.

Very common in October and November.

131. **Polydesma igneipicta**, Low.

Not uncommon in February and March.

132. **Polydesma aglossoides**, Gn.

Rather scarce. Taken during March. It is generally larger and paler than the preceding species, but otherwise very closely allied.

133. **Dasypodia selenophora**, Gn.

Not uncommon, generally taken in the house, preferring shady spots, in November and March.

134. **Tathorhyncus exsiccata**, Led.

Common in November, March, and April.

135. **Sandava xylistis**, Swin.

Not uncommon during March.

136. **Calathusa ischnodes**, Turn.

Fairly common at light, March to May. Turner describes the hindwings as "fuscous, towards base suffused with whitish"; this is probably correct. Hampson (Cat. Lep. Phal., xi., p. 380, pl. clxxxiv., fig. 12) describes them as "pale purplish-red," whilst his figure (which is indifferent) shows them clear ochreous.

137. **Calathusa hemiscia**, n. sp.

♀, 28 mm. Head blackish. Palpi and antennae fuscous. Thorax fuscous, thickly irrorated with white, patagia white.

Abdomen ochreous-fuscous. Legs fuscous, posterior pair mixed with grey-whitish. Forewings elongate, costa gently arched, termen obliquely rounded; ashy-grey-whitish, upper half of wing throughout blackish, separation rather sharply defined; antemedian line hardly traceable; orbicular and reniform not traceable; postmedian line perceptible from below lower edge of to dorsum, with a rounded projection to submedian fold, thence oblique; subterminal line fuscous, very faint, only perceptible on veins; a row of interneural black spots along termen, sometimes obsolete; cilia greyish-fuscous, chequered with dark-fuscous. Hindwings with termen faintly sinuate, fuscous, becoming ochreous on basal two-thirds; cilia grey-whitish, with a fuscous median line.

Closely allied to *ischnodes*, Turn., but apparently distinct.

One specimen, in March; also from near Dalby, Queensland.

138. Calathusa thermosticha, n. sp.

♂, ♀; 26, 30 mm. Head, palpi, antenna, and thorax cinerous-grey. Abdomen greyish-ochreous, whitish beneath. Legs cinerous-grey, posterior pair whitish. Forewings shaped as in *hemiscia;* cinerous-grey; a strongly-marked black longitudinal streak above middle of wing, from base to termen; all veins neatly outlined with black; all other markings obsolete, with the exception of three or four suffused black interneural dots along lower half of termen; cilia cinerous-grey, with black streaks at extremities of veins. Hindwings with termen slightly sinuate; greyish-ochreous in male, dull-ochreous in female; both with a moderately broad fuscous apical patch, continued along termen to beyond middle; cilia grey-whitish in male, ochreous in female.

Two specimens, in March and April; also from Semaphore and Pinnaroo, South Australia.

139. Calathusa aethalistis, n. sp.

♀, 28 mm. Head, palpi, antenna, and thorax smoky-fuscous. Abdomen dull ochreous-fuscous. Legs cinerous-grey, posterior coxae ochreous tinged. Forewings shaped as in *hemiscia*, but termen less rounded; smoky-fuscous; an obscure somewhat darker median shade, anterior edge from beyond one-quarter costa to one-third dorsum; posterior edge from beyond middle of costa to middle of dorsum, with a strongly-rounded projection in middle, on which are four or five raised tufts of fuscous scales; faint indications of a few fuscous spots along termen; cilia light-fuscous. Hindwings with termen faintly sinuate above middle; dull-ochreous, mixed with light fuscous on terminal half; cilia greyish-ochreous. Forewings beneath light-fuscous, hindwings clear yellow.

One specimen, in April, at light.

140. PROROCOPIS MELANOCHORDA, Meyr.

Two specimens, in May; also from Derby, Western Australia, and Duaringa, Queensland. The hindwings of the Derby specimen are much whiter than those from Broken Hill and Duaringa.

141. PROROCOPIS HYPOXANTHA, Low.

Two specimens, in December.

142. PROROCOPIS EUXANTHA, Low.

Three specimens, in January and March; also from Birchip, Victoria, and Brisbane, Queensland. I also possess a specimen from Northampton, Western Australia, which may probably be this species, but is too poor for identification.

143. PROROCOPIS STENOTA, Low.

Three specimens, in October.

144. PROROCOPIS ADELOPIS, Low.

Four specimens, in October; also from Derby, Western Australia. In this specimen the hindwings are nearly white, and markings of forewings obscure.

145. PROROCOPIS LEUCOCROSSA, Low.

One specimen (type), in October.

146. PROROCOPIS SYMMOPA, n. sp.

♀, 25-28 mm. Head, palpi, antennae, and thorax ashy-grey-fuscous. Abdomen ochreous-fuscous, legs ochreous-white, tibiae and tarsi infuscated. Forewings elongate, costa rather strongly arched, termen rounded, hardly waved; cinerous-grey, thickly irrorated with fuscous and dark-fuscous; markings narrow, black; sub-basal line curved outwards, reaching submedian fold; antemedian line dentate, with a short acute projection outwards below costa; postmedian line with a moderately outwards curved projection above middle, slightly indented in centre, gently curved inwards to dorsum; subterminal line crenulate, indented above and below middle, and preceded by its own width by a dull-whitish shade; a row of small black dots, well before termen; a fine waved black line along termen; cilia ashy-grey fuscous. Hindwings with termen hardly waved; dull-ochreous, finely irrorated with fuscous on terminal half; cilia greyish-ochreous.

Allied to preceding species, but lines are arranged differently.

One specimen, in March; also from near Duaringa, Queensland.

147. PROCONIS EULOPHA, Low.

Proconis eulopha, Low., *ante*, 1903, p. 44.

Two specimens, in May.

Additional Noctuina.

148. PERIGEA CONFUNDENS, Wlk.

Taken occasionally at light, March to May.

149. ARIATHISA CONFINIS, Wlk.

Several specimens, in August, September, and October.

150. ARIATHISA ADELOPA, Low.

Ariathisa adelopa, Hmps., Cat. Lep. Phal., viii., p. 407, pl. cxxxii., fig. 23 (1909).

♂, 42 mm. Head and thorax greyish-fuscous, palpi and antennae reddish-fuscous. Abdomen greyish-fuscous. Legs ochreous, mixed with fuscous, tarsi banded with black. Forewings elongate, costa hardly arched, termen obliquely rounded; greyish-fuscous, thickly and minutely irrorated with black, terminal area somewhat darker; sub-basal line indistinct, only visible on costa as a black dot, antemedial line obscure, blackish, oblique, waved, angled outwards at submedian fold; reniform lunular, blackish, with a rufous lunule on its anterior edge, placed on indistinct waved median line, which is oblique from costa to lower angle of cell; postmedian line obscure, waved, outwardly bent below costa, twice incurved on lower half; subterminal obscure, slightly angled outwards at vein seven; a terminal series of indistinct striae; cilia dark-fuscous. Hindwings with termen rounded; dark-fuscous; underside grey, costal area irrorated with black; a small fuscous lunular mark in disc; terminal area blackish, becoming deeper towards apex; cilia fuscous. Abdomen with large exsertible lateral tufts.

Gisborne, Victoria, one specimen ([?] March).

151. ARIATHISA HETEROGAMA, Low.

Ariathisa heterogama, Hmps., Cat. Lep. Phal., viii., p. 404, pl. cxxxii., fig. 17 (1909).

♂, ♀; 34, 38 mm. Head and thorax whitish, irrorated with reddish-fuscous, palpi dark-fuscous at base, tegulae with the basal half blackish. Abdomen and legs ochreous-white, abdomen whitish beneath; tarsi with blackish rings. Forewings elongate, costa hardly arched; termen rounded, oblique: reddish-ochreous, irrorated with fuscous and dark-fuscous; sub-basal line only represented as black striae from costa and cell; antemedian line black, oblique, undulated; orbicular an obscure minute reddish spot; reniform small, lunulate, edged with brownish on inner side; median line obscure, oblique, from costa to median nervure, thence sinuous; postmedian line obscure, blackish, bent outwards beneath costa, thence dentate, incurved below vein four and angled outwards on submedian fold; some pale points beyond it on costa; subterminal line obscure, anteriorly suffused with dark-fuscous; sinuate outwards on vein seven, thence dentate, oblique; a series of black points along termen; cilia greyish-fuscous, with a pale line at base. Hindwings white, somewhat infuscated on veins and towards apex; cilia grey-whitish.

The female has the head, thorax, and forewings more whitish, and hindwings paler.

Rather common during March, April, and May.

GEOMETRINA.

This group is tolerably well represented in the district, the *Selidosemidae* being most numerous. The *Hydriomenidae* are disappointing, being less than a score; and as the genus *Hydriomena* embraces probably 200 species in Australia, it is improbable that this district will materially add to the number. As will be seen the other families of the group, with the exception of the *Sterrhidae*, have representatives, but to no great extent.

Subfamily HYDRIOMENINAE.

152. **Pasiphila filata**, Gn.

Taken occasionally in October and November.

153. **Phrissogonus laticostatus**, Wlk.

Rather common during August, October, and November.

154. **Asthena pulchraria**, Dbld.

Three specimens, in February and May, at light.

155. **Hydriomena mecynata**, Gn.

Very scarce here, three specimens in December.

156. **Hydriomena uncinata**, Gn.

Taken occasionally in October and December.

157. **Hydriomena subochraria**, Dbld.

Not uncommon, January to March.

158. **Hydriomena cryeropa**, Meyr.

Not uncommon in certain localities in October.

159. **Hydriomena actinipha**, Low.

Five specimens, in March.

160. **Hydriomena pentodonta**, n. sp.

♂, ♀; 22, 24 mm. Head, palpi, antennae, thorax, and abdomen fuscous, fillet with a small ferruginous spot; palpi two; antennal ciliations half. Abdomen with blackish segmental bands. Legs fuscous-whitish, tibiae and tarsi ringed with whitish. Forewings triangular, termen waved, hardly bowed, oblique; rather dark-fuscous, crossed by numerous fine blackish lines, and with veins more or less streaked with ferruginous, especially towards termen; anterior edge of basal patch slightly curved, from costa one-sixth to dorsum at about one-fourth; anterior edge of median irregularly and finely dentate, gently and evenly curved inwards, from before one-third of costa to one-third dorsum; a blackish discal dot; posterior edge of median band from three-fourths to before two-thirds dorsum, with five rather sharp projections, one below costa, two contiguous in middle, upper one longest, and two others just above dorsal, abbreviated; space between basal patch and anterior edge of median, and between posterior edge and subterminal line snow-white; subterminal suffused, interrupted, waved, more pronounced on veins, where it becomes dot-like; an inwardly oblique streak of fuscous from below apex towards middle of subterminal; a waved black line along termen; cilia whitish, barred with fuscous at extremities of veins. Hindwings with termen waved; rounded; fuscous; three finely-waved transverse lines, corresponding to lines of median patch of forewings; subterminal line rather thick, waved; preceded by its own width of dull-greyish; line along termen and cilia as in forewings.

Two specimens, in April.

161. **Hydriomena subrectaria**, Gn.

Five specimens, in November; one specimen from Milperinka.

162. **Hydriomena imperviata**, Wlk.

Ten specimens, during March and May.

163. **Hypycnopa delotis**, Low.

Three specimens, in April and May.

164. **Xanthorhoe paradelpha**, Low.

Five specimens, in March.

165. **Xanthorhoe subidaria**, Gn.

Taken frequently at light, in March and April. I have taken but a single specimen of the var. *urbana*, Meyr.

166. **Xanthorhoe hyperythra**, Low.

Several specimens, in March.

Subfamily MONOCTENIANAE.

167. **Taxeotis exsectaria**, Wlk.

Taken occasionally at light, in October.

168. **Taxeotis delogramma**, Meyr.

Tolerably common in the hills near the town in December.

169. **Taxeotis intextata**, Gn.

Seven specimens, all females, in September.

170. **Taxeotis xanthogramma**, Low.

Not common, occasionally met with in September and October.

171. **Taxeotis phaeopa**, Low.

Taken occasionally in May and June.

172. **Diceratucha xenopis**, Low.

Rather common during the winter months, very sluggish, and generally taken at light.

173. **Darantasia**(1) **perichroa**, Low.

Not uncommon in September and October.

Dichromodes, Gn.

It is a curious fact that, although this genus is predominant in this family, I have not succeeded in discovering a single individual in this locality, though I have made diligent search.

Subfamily GEOMETRINAE.

174. **Eois albicostata**, Wlk.

Taken occasionally in March.

---

(1) As Hampson (Cat. Lep. Phal., ii., p. 271, 1900) employs the name *Darantasia* for a genus of *Arctiadae*, with *cuneiplena*, Wlk., as the type, it may prove necessary to erect a new genus to receive *perichroa*.

175. **Eois stenozona**, Low.

One specimen (type), in September.

176. **Leptomeris lydia**, Butl.

Very common from October to March.

177. **Leptomeris rubraria**, Dbld.

Rather common from August to March.

178. **Leptomeris hypochra**, Meyr.

Three (poor) specimens from Yancannia, without date.

179. **Leptomeris optivata**, Wlk.

Common in August and November; not observed during the summer, *i.e.*, December to March.

180. **Pylarge episcia**, Meyr.

Not uncommon in September and October. Somewhat variable in depth of colouring, some specimens being almost clay coloured.

181. **Emmiltis trissodesma**, Low.

Not uncommon March to April, also June and October. The sexes are markedly dissimilar.

182. **Emmiltis cosmadelpha**, Low.

Taken occasionally during April, also in September and October, usually at light. This species is subject to some slight variation in the hindwings of both sexes, those of the male being occasionally deep yellow, and in the female pale-yellow, thickly irrorated with fuscous.

183. **Emmiltis (?) argillina**, n. sp.

♂, 18 mm. Head, palpi, antennae, and thorax fuscous, palpi long, porrected, second joint densely haired beneath. Antennae annulated with white, shortly serrate(?); thorax posteriorly ochreous, patagia ochreous. Abdomen fuscous, segmental margins obscurely whitish. Legs whitish, irrorated with fuscous. Forewings elongate, triangular, termen rounded, oblique; ochreous-fuscous; an ochreous basal patch, outer edge curved from costa at one-quarter to about one-third dorsum; a slightly outwards curved, moderate, dull orange transverse fascia, edged on either side by fine black somewhat waved line, anterior edge separated from basal patch by a narrow line of white throughout; a similar, but duller orange transverse fascia, from costa at two-thirds to dorsum before anal angle, slightly angled outwardly below costa, and faintly sinuate above and below middle; a fuscous-ochreous rather broad transverse fascia immediately beyond second fascia, and only separated by a fine line of white throughout; the fascia is strongly indented above and below middle and followed throughout by a well-marked narrow parallel line; a fine blackish interrupted line along termen, preceded by minute white spots; cilia fuscous-ochreous, terminal half barred with white, a fine blackish median line throughout. Hindwings with termen rounded; dull whitish, thickly overlaid with fuscous; two waved, whitish, transverse parallel lines, anterior from costa at three-fifths to just above anal angle, second line more obscure; cilia as in forewings, but white bars less pronounced.

One specimen, in March, at light.

I am not satisfied with the position of this species, and I much doubt whether it is an *Emmiltis*. The palpi and antennae appear to suggest a new genus, but I consider my material insufficient to erect one at present.

184. EUCHLORIS VERTUMNARIA, Gn.

Two specimens, in May.

185. EUCHLORIS ALBICOSTA, Wlk.

Five specimens, in March.

186. HYPOCHROMA OCCULTARIA, Don.

Rather scarce here; two specimens, November and December.

187. PSEUDOTERPNA ARGYRASPIS, Low.

Two specimens, beaten from *Eucalyptus*, in March.

188. XENOCHLAENA PORPHYROPA, Low.

The type, taken in October, is still unique. The name is misprinted *porphyropis*. *Ante*, 1903, p. 192.

Subfamily SELIDOSEMIDAE.

189. OSTEODES PROCURATA, Wlk.

Two specimens, in October.

190. COSYMBIA (2) PENTHEARIA, Gn.

Four specimens, at light, in November.

---

(2) Mr. Meyrick, in 1891, surmised that probably this genus extended right across the interior of Australia, from east to west, without touching the coast, and my experience tends to support the theory.

191. **Scioglyptis trisyneura**, Low.

One female specimen (which in markings is similar to the male), taken in October. The type came from Arltunga, South Australia, and was taken in November.

192. **Selidosema suasaria**, Gn.

Taken occasionally in March.

193. **Selidosema excursaria**, Gn.

Tolerably common in May and June.

194. **Selidosema acaciaria**, Bdv.

I have two specimens, probably referable to this species, taken in October and November.

195. **Selidosema argoplaca**, Meyr.

Two specimens, beaten from *Eucalyptus*, in October.

196. **Selidosema diagramma**, Low.

Two specimens, in April.

197. **Hybernia indocilis**, Latr.

Rather common locally. Larvae (undescribed) feed on *Chrysanthemum*, *Clematis*, and *Muehlenbeckia*, and the imagoes emerge from July to March.

198. **Ectropis pristis**, Meyr.

Four specimens, April and August.

199. **Ectropis plectroneura**, Low.

Four specimens, April and August.

200. **Ectropis hieroglyphica**, Low.

One specimen (type), in October, 1900.

201. **Pachytyla doliopa**, Low.

One specimen (type), in June.

202. **Paurocoma molybdina**, Low.

Five specimens, April and May.

Angelia, Low.

This is the predominant genus of the family in this district, and is destined to be increased; indeed, I possess two additional species which are probably new, but too poor to describe.

203. **Angelia tephrochroa**, Low.

Five specimens, April and May.

204. ANGELIA PLATYDESMA, LOW.

Several specimens, April and May.

205. ANGELIA HETEROPA, LOW.

Not uncommon in April, May, and June.

206. ANGELIA CALLISARCA, LOW.

One specimen (type), April, 1902.

207. ANGELIA CRYPSIGRAMMA, LOW.

Nine specimens, March and April.

208. ANGELIA EURYPSAMMA, n. sp.

♂, ♀; 25-32 mm. Head, palpi, and thorax ochreous. Antennae ochreous-whitish, pectinations fuscous, at greatest length about six. Abdomen ochreous-grey. Legs whitish-ochreous, anterior pair infuscated. Forewings elongate-triangular; costa gently arched; termen bowed, oblique; pale-ochreous, in female minutely, sparsely, and irregularly irrorated with blackish; costal edge narrowly dark-ochreous throughout; a thick black elongate streak in cell on lower edge throughout, continued at posterior extremity to upper edge of cell, finely edged throughout on lower edge by a line of whitish-ochreous, which is continued to base of wing; a short, thick, black, elongate streak lying between vein one and lower edge of cell, from near base to slightly beyond anterior edge of first black streak; a similarly thick black dentate line at two-thirds from base, commencing on vein one and continued obliquely to vein seven, strongly bidentate outwards in middle, suffusedly edged anteriorly with narrow shade of light fuscous; cilia pale-ochreous. Hindwings with termen rounded; greyish-white, tinged with light fuscous on terminal half of wing; a moderately large fuscous discal spot; traces of a faint fuscous waved submedian line; cilia ochreous-grey, mixed with fuscous at base.

Closely allied to the following, which in turn is allied to *crypsigramma*, Low.

Four specimens, in April.

209. ANGELIA PHILOCOSMA, n. sp.

♂, ♀; 25-30 mm. Head and palpi fuscous. Thorax ashy-grey-whitish, in female mixed with reddish-fuscous. Antennae whitish, pectinations light fuscous, at greatest length six. Abdomen grey-whitish in male; ochreous in female. Legs grey-whitish, anterior pair fuscous tinged. Forewings shaped as in *eurypsamma;* in male ashy-grey-whitish, sparsely irrorated with minute black dots, in female thickly irrorated with reddish-fuscous; markings black; a moderately thick streak from base, continued along vein one to before middle; an elongate, rather thick streak in cell, resting on lower edge to extremity and then continued to upper edge indicating discal spot, narrowly edged throughout below by a streak of light ochreous; a thick dentate streak from dorsum to vein seven, outwardly oblique, and strongly bidentate in middle, bidentation less pronounced in female; a very fine fuscous outwards curved line from one-sixth costa to anterior edge of cellular streak, hardly traceable in female; groundcolour of male between this and dentate obilque streak wholly reddish-fuscous, except a thick streak of groundcolour along costa; in female the dentate oblique streak is preceded by a tolerably thick reddish-fuscous shade; a row of blackish interneural spots along termen, absent in male; cilia greyish-ochreous, chequered with fuscous bars in female. Hindwings with termen rounded; grey, thickly irrorated with fuscous, lighter on basal half; a moderately large fuscous discal spot; a moderately thick waved submedian line, hardly discernible in female; cilia grey-whitish.

The male has a close resemblance to *platydesma*, Low., but the markings are differently arranged.

Three specimens, in May.

210. ANGELIA HAPLOCHROA, n. sp.

♂, ♀; 25-30 mm. Head, palpi, and thorax grey-whitish, fuscous tinged in male. Antennae light fuscous, pectinations four. Abdomen greyish-ochreous. Legs fuscous-whitish. Forewings elongate, triangular, termen gently bowed, oblique; pale grey-whitish, ochreous tinged in male; an outwardly curved series of three reddish-ferruginous dots, from below costa at one-quarter to just above dorsum at one-quarter; a similarly coloured series of dots, from costa about three-quarters to just before anal angle, gently curved outwards on upper two-thirds; cilia greyish-ochreous. Hindwings with termen faintly waved, rounded; greyish-fuscous, darker on terminal half; a moderately large fuscous discal dot, cilia grey-whitish.

Two specimens, in May.

211. ANGELIA STENOSCIA, n. sp.

♀, 26 mm. Head, palpi, and thorax greyish-ochreous. Antennae broken. Abdomen grey-whitish. Legs greyish. Forewings elongate, triangular, termen gently bowed, oblique; grey-whitish, very sparsely sprinkled with light fuscous; an outwardly curved reddish-fuscous narrow line from below costa at one-quarter to dorsum at one-third; a similarly coloured line, finely waved throughout, and accompanied on its posterior edge by a line of whitish-ochreous of similar width throughout; a large quadrate fuscous discal spot; an indistinct row of fine black points before termen; cilia grey-whitish. Hindwings with termen faintly waved; greyish-fuscous, much darker on terminal half; a moderate fuscous discal spot; cilia grey-whitish.

One specimen, in May.

212. AMELORA POLYCHROA, Low.

One specimen, in December. The type came from Dundas, Western Australia.

213. PARAMELORA ZOPHODESMA, Low.

Four specimens, May and October.

214. PARAMELORA LYCHNOTA, Low.

Five specimens, April, May, and October, probably attached to *Eucalyptus.*

215. THALAINODES TETRACLADA, Low.

One specimen (type), in May, 1900.

216. THALAINODES PARONYCHA, Low.

Not uncommon during April and May.

217. THALAINODES ALLOCHROA, Low.

Several specimens, during April and May. The male does not differ from the female in appearance, excepting the bipectinated antennae, the pectinations being four.

218. AMPHICROSSA HEMADELPHA, Low.

Several examples, April to June.

219. CHLENIAS ARIETARIA, Gn.

Very common at street lamps, April and May.

220. CHLENIAS HETEROMORPHA, Low.

Common during April, May, and June.

221. CHLENIAS SERINA, Low.

Several specimens, April and May.

222. CHLENIAS MELANOXYSTA, Meyr.

Taken occasionally, during April and May.

223. CHLENIAS BANKSIARIA, Le Guill.

Three specimens, in May.

AUSTRALIAN HYMENOPTERA PROCTOTRYPOIDEA.
NO. 3.

By ALAN P. DODD.

[Read October 14, 1915.]

The families *Diapriidae*, *Belytidae*, and *Proctotrypidae*; with additions to the *Ceraphronidae* and *Scelionidae*.

Family PROCTOTRYPIDAE.

The old name is used, for the present, instead of *Serphidae*. The Australian representatives of the family do not appear to be numerous, as rather extensive collections made by the author, and others seen by him, have produced but five species, represented by seven specimens. One remarkable and distinct new genus is described, but the other new species fall into well-known genera.

Table of Australian genera.

(1)	Mandibles small or absent; pronotum and postscutellum spined; scape abnormal; venation abnormal; stigma slender, lanceolate	*Acanthoserphus*, n. g.
	Mandibles large; pronotum and postscutellum not spined; scape normal; venation normal; stigma large, semicircular	(2)
(2)	Parapsidal furrows complete and distinct	*Disogmus*, Foerster
	Parapsidal furrows incomplete, at the most indicated anteriorly ...	(3)
(3)	Propleura striate	*Proctotrypes*, Latreille
	Propleura not striate	(4)
(4)	Oviduct of female filiform	*Cryptoserphus*, Kieffer
	Oviduct of female not filiform	*Phaenoserphus*, Kieffer

ACANTHOSERPHUS, n. g.

♂ ♀. Head, viewed from above, transverse; eyes occupying the whole length of the vertex, large; ocelli large, in a triangle, rather close together, and widely separated from the eyes; frons triangular, about as wide as greatest length, the antennae inserted in its middle, and separated from each other by a blunt erect tooth. Antennae 13-jointed in both sexes; scape rather stout, prolonged on its dorsal edge into a sharp point, this completely hiding the pedicel and covering base of first funicle joint, its outer edge also with a small sharp spur some distance from apex, this scarcely defined in the male;

pedicel inserted within the scape, short and stout; funicle joints long, in the male filiform, in the female slightly thickened distad. Maxillary palpi long and slender, 5-jointed, the first joint short; labials 3-jointed. Mandibles small, or absent (?). Pronotum short, situated far below the scutum (lateral aspect), with a large, stout, semi-erect, sharp horn on either side. Propleura not striate. Scutum with deep, complete, parapsidal furrows, these meeting caudad. Scutellum with a deep transverse groove at base. Postscutellum with a large semi-erect spine, this blunt at apex. Metanotum rugose. Petiole of abdomen very short; body of abdomen narrowed somewhat at base, compressed laterally; the male with two or three segments visible, the first occupying almost all of surface; the female with one segment only visible, produced into a long fleshy oviduct, this about as long as the abdomen. Legs long and slender, tarsal claws simple. Forewings ample; submarginal vein distant from the costa, the stigma slender, lanceolate; radial cell closed, long, over twice as long as greatest width; basal vein distinct, not attaining the submarginal; median and submedian veins distinct, the latter fading distad, the former curving upward and forming a rather short discoidal vein, this separated from a proximal prolongation of the radial vein by a short interruption; median vein with also at its apex a short vein curving downward, this giving off a false recurrent vein running almost parallel with the hind margin of the wing; another false recurrent vein runs from near discoidal vein almost to the wing apex; veins, except where otherwise stated, true, not brown lines or marks. Hindwings with a costal vein only.

A remarkable genus, widely separated from other genera of its family. The form of the scape, apparent absence of mandibles, spined pronotum and postscutellum, slender stigma, and well-developed venation readily distinguish it. *Type* -- The following species.

ACANTHOSERPHUS ALBICOXA, n. sp.

♀. Black, shining, with a dull-yellowish patch involving the tegula: coxae white, also joints 9 and 10 (except apex of latter) of antennae; rest of antennae black, the scape and pedicel golden-yellow, also trochanters, femora, and tibiae; the tibiae faintly dusky, the tarsi fuscous. Body shining, smooth, with very scattered pin-punctures, the metanotum rugose. Forewings long and broad, uniformly darkly infuscate, the venation fuscous. Funicle joints long, rod-like, gradually shortening, the first longest, the tenth not twice as long as wide, the last joint one-third longer than preceding, broadly rounded at apex. Length, 4·10 mm.; to end of oviduct, 6·30 mm.

♂. Like the female, but the yellowish patch on the thorax somewhat larger. Funicle wholly black, not widened toward apex, the tenth joint two and a half times as long as wide, the last joint pointed at apex. Length, 4·10 mm.

Hab.—Queensland: Kuranda, 1,200 ft. Described from two females and one male taken on decayed log in jungle, April 3, 1915 (A. P. Dodd).

It is possible that the oviduct is freely retractile, as before capturing the insects it was not noticed. *Type.*—I. 5087, South Australian Museum. A male and female on two tags, male and female heads, antennae, and wings on a slide.

DISOGMUS, Foerster.

Kieffer (1909) lists fifteen species, from Europe and North America.

DISOGMUS NIGERRIMUS, n. sp.

♀. Shining black; cephalic tibiae and all tarsi ferruginous. Thorax convex dorsad; scutum and scutellum smooth, shining, the metanotum coarsely rugose; parapsidal furrows deep and complete, almost joining caudad; scutellum with a deep groove separating it from scutum; metanotum with a deep transverse groove at base, this interrupted at meson, the sclerite nearly as long as the scutum. Petiole visible as a transverse line; abdomen compressed laterally; somewhat narrowed at base, as long as the thorax, striate at base; oviduct about as long as body of abdomen (the oviduct appears retractile, as in *Acanthoserphus*, and possibly in life it is withdrawn). Mandibles acute, edentate; maxillary palpi 5-jointed. Legs rather slender, the femora long, cylindrical. Forewings long and broad; subhyaline, with a large square blotch commencing at base of stigma and continued some distance beyond radial vein, extending fully half-way across wing, dusky; venation fuscous, the stigma large, semicircular; radial cell small, not one-half as large as stigma; median and basal veins indicated by brown lines. Antennae 13-jointed: scape moderately long; pedicel short, wider than long; funicle joints long, filiform, the first fully twice as long as wide, the tenth a little shorter, the last joint somewhat longer. Length, to apex of oviduct, 5·50 mm.; without oviduct, 4·00 mm.

Hab.—Tasmania: Hobart (A. M. Lea).

Type.—I. 5088, South Australian Museum. A female on a tag, head, antennae, and forewings on a slide.

PROCTOTRYPES, Latreille.

Serphus, Schrank, Kieffer, 1909.

Kieffer has split the old genus *Proctotrypes* into three genera, which do not appear valid. The characters given for *Serphus* are:—"Propleures striées; abdomen ordinairement rouge en majeure partie; oviduct filiforme." The species described below has some striae on the propleura, but the oviduct is not filiform, and the body is wholly black. Kieffer's *Serphus*, Schrank, contains fifteen species, chiefly from Europe and North America.

PROCTOTRYPES AUSTRALIAE, Kieffer.

Berlin Ent. Zeitschr., vol. lii., 1907, p. 266. Australia.

PROCTOTRYPES JANTHINAE, n. sp.

♀. Shining-black, the antennae concolorous; legs black, the knees and anterior tibiae and tarsi golden-yellow; posterior tibiae and tarsi fuscous; apex of all coxae yellow. Head, scutum, and scutellum smooth, with very fine pubescence; propleura smooth, but with some striae, the mesopleura striate for dorsal half; parapsidal furrows wholly wanting; metanotum rugose, the anterior portion short at meson, the dividing carina thus V-shaped with its apex cephalad. Petiole not visible from above; the abdomen abruptly convex above from its base (lateral aspect), produced into a long non-filiform oviduct, this longer than body of abdomen. Forewings long, broad; hyaline; venation fuscous; stigma large, as wide as long, the radial vein small, scarcely distant from the stigma, the radial cell visible as a narrow split; no other veins. Scape as long as first funicle joint, the pedicel much wider than long; first funicle joint fully twice as long as wide, the others shortening, the penultimate one-third longer than wide; last joint distinctly longer than scape. Length, to apex of oviduct, 4·05 mm.

Hab.—Victoria: Melbourne (?). One female, labelled "No. 57, National Museum, bred from larva of fungus beetle, *Thallis janthina*, 16/9/13, F.S."

Type.—In the National Museum, Melbourne. A female on a tag, antennae and forewings on a slide.

CRYPTOSERPHUS, Kieffer.

Another of Kieffer's divisions of *Proctotrypes*, and of very doubtful validity. Eleven species are known—one, *C. unidentatus*, Kieffer, from Chili, the remainder from Europe.

Cryptoserphus nigriscutum, n. sp.

♀. Black; thorax chestnut-brown, the scutum and metathorax black; legs and tegulae wholly golden-yellow; antennae brown, the scape yellow. Head very transverse, with scattered short pubescence. Scutum convex, smooth like the head and with scattered pubescence, without a trace of parapsidal furrows; scutellum rather small, somewhat convex; metanotum divided into two halves; anterior half with a median and lateral carinae, between these smooth, separated from posterior half by a transverse carina, the posterior half somewhat declivous, rugose, covered with dense whitish pubescence. Petiole only visible from above as a transverse line. Body of abdomen compressed, oval, with a filiform oviduct which is nearly as long as body of abdomen; abdomen at base with a delicate median longitudinal impression, and a few short obscure carinae, its anterior margin carinate. Forewings long, broad; subhyaline; stigma longer than greatest width, the radial vein longer than stigma, the radial cell narrow; no trace of median, basal veins, etc. Scape stout, somewhat shorter than first funicle joint; pedicel stout, quadrate; funicle joints slender, the first much narrowed at base, the others less so; one over twice length of pedicel, the others shortening, the penultimate two-thirds longer than wide, the last joint as long as funicle one. Length, to apex of oviduct, 3·25 mm.; to base of oviduct, 2·25 mm.

Hab.—Queensland: Cairns district, 1,500 ft. One female caught by sweeping in jungle, September 18, 1913 (A. P. Dodd).

Type.—I. 5089, South Australian Museum. A female on a tag, antennae and forewings on a slide.

Cryptoserphus nitidus, n. sp.

♂. Shining-black; legs (including coxae), tegulae, and antennal scape and pedicel, golden-yellow. Prothorax and mesothorax finely densely pubescent; parapsidal furrows present anteriorly; metanotum as in *nigriscutum*, also petiole and base of abdomen. Forewings long, broad; hyaline; stigma somewhat longer than greatest width, the radial vein almost parallel with its distal margin; no trace of other veins, except submarginal; radial cell narrow; venation fuscous. First funicle joint two and a half times as long as wide, distinctly longer than second, the tenth one-half longer than wide, the last as long as first. Length, 3·00 mm.

Hab.—Queensland: Cairns district. One male caught by sweeping in jungle, July 24, 1913 (A. P. Dodd).

Type.—I. 5090, South Australian Museum. A male on a tag, head, antennae, and forewings on a slide.

PHAENOSERPHUS, Kieffer.

Kieffer, 1909, lists 32 species from widely distant *habitats*.

PHAENOSERPHUS INTRUDENS, Smith.

Trans. Ent. Soc., London, 1878, p. 5. Australia.

Family BELYTIDAE.

Few species have been obtained, and of these most fall into new genera. More males have been collected, but were left entirely alone, as it was thought they might belong to wingless females yet to be discovered. Kieffer has erected many genera on the male sex only, which does not seem a wise plan, as wingless females are probably more numerous than has been supposed, and would possibly differ greatly from their males. Where sexes differ greatly in family or group it seems preferable to use one only as the stable sex for generic erections. The Australian genera, on the whole, appear to possess less wing venation, as compared with the already known forms from other countries.

Table of Australian genera.

(1)	Wingless	(2)
	Winged	(3)
(2)	Parapsidal furrows complete and distinct	*Aclista*, Foerster (part)
	Parapsidal furrows wanting	*Neobetyla*, n. g.
(3)	Abdomen after the second segment produced into a long, fleshy, four-segmented protuberance, or stylus	*Stylaclista*, n. g.
	Abdomen not produced or stylate	(4)
(4)	Forewings split longitudinally from apex	*Pantolytomyia*, n. g.
	Forewings normal, not split from apex	(5)
(5)	Petiole very long, as long as body of abdomen; scutellum semi-rugose	*Psilommella*, n. g.
	Petiole much shorter than body of abdomen; scutellum smooth	(6)
(6)	Radial cell closed	*Meuselia*, Kieffer
	Radial cell open	(7)
(7)	Hindwings with one closed cell	*Aclista*, Foerster (part)
	Hindwings without a closed cell	*Pantolytoidea*, n. g.

STYLACLISTA, n. g.

♀. Head normal, globular. Antennae 15-jointed, the joints all longer than wide, without a distinct club, the apical joints faintly incrassate. Mandibles not small, but not long; falcate; bidentate. Forewings ample; marginal vein long and slender; stigmal short, with a distinct knob; median indicated, the basal distinct, the recurrent faintly indicated, directed toward junction of basal and median veins. Hindwings narrow, with only the costal vein. Maxillary palpi 5-jointed, slender, the labials at least 2-jointed. Thorax normal; pronotum short; parapsidal furrows complete and distinct; scutellum with a deep circular fovea at base; metanotum moderately long, with a median carina, its latero-caudal angles subacute. Petiole over twice as long as wide, a little swollen in centre (dorsal aspect), faintly carinate; viewed from the side it is somewhat convex. Body of abdomen slender, straight above, gently convex beneath, barely twice as long as petiole; composed of only two segments, the second (*i.e.*, first body segment) occupying almost all surface, with a short median groove at base; abdomen with a long fleshy protuberance, as long as the petiole and body of abdomen combined, composed of four segments of equal length and width.

The peculiar stylate abdomen at once distinguishes the genus. *Type.*—The following species.

STYLACLISTA NOTABILIS, n. sp.

♀. Head black, the thorax and abdomen dull reddish-brown, the pronotum and scutum paler, the legs golden-yellow, also the antennal scape and pedicel; rest of antennae dull-reddish, the last joint pale yellowish-white. Forewings long, not very broad, a little infuscate. First six funicle joints subequal, as long and a little narrower than the pedicel, twice as long as wide, the next six gently incrassate, the penultimate one-fourth longer than wide; last joint over twice as long as wide. Length, including protuberance of abdomen, 2·20 mm.

Hab.—Queensland: Cairns district. Described from two females caught by sweeping in coastal jungle.

Type.—I. 5091, South Australian Museum. A female on a tag, head and forewings on a slide.

PANTOLYTOIDEA, n. g.

♀. Head normal; smooth, except for scattered long setae; antennal prominence very distinct; eyes and ocelli large; mandibles not large, bidentate, the outer tooth longer; maxillary palpi 5-jointed. Thorax convex dorsad; parapsidal furrows deep and complete; scutellum with a large circular depression at base; postscutellum unarmed; metanotum smooth, tricarinate. Petiole not or barely twice as long as greatest width, carinate, the sides somewhat swollen in centre. Abdomen short and stout, usually wider than the thorax, depressed medially at base, twice or thrice as long as greatest width, composed of four body segments only, the second (first body segment) occupying fully two-thirds length, the third shortest, the fifth pointed at apex, as long as the two preceding united. Forewings ample; marginal vein linear, about thrice as long as wide, the stigmal not half its length, short, and oblique; basal, median, and recurrent veins scarcely indicated. Hindwings without a basal cell. Antennae 15-jointed, with a club of seven or eight joints.

Differs from *Pantolyta*, Foerster, in having one less abdominal segment, and in the less complete venation.

Type.—*P. splendida.*

PANTOLYTOIDEA SPLENDIDA, n. sp.

♀. Bright-reddish or chestnut-brown, the metanotum, sides of thorax, and petiole darker; first five club joints black, the apical three pale golden-yellow; eyes and ocelli black; abdomen wholly concolorous or margined with blackish. Petiole with its meson tricarinate. Forewings long and broad; infuscate, this deepest beneath venation and in centre of wing, with a white strip in lieu of a median vein, and another continued through meson of wing; venation blackish. Scape long and slender; pedicel one-half longer than wide, the first funicle joint much longer, nearly thrice as long as wide; 2-5 shortening, the fifth one-half longer than wide; first club joint as long as wide, 2-7 all wider than long, the club 8-jointed. Abdomen barely twice as long as wide. Length, 3·60 mm.

Hab.—Queensland: Yungaburra, 2,500 ft. Described from two females caught by sweeping in jungle, May 10, 1915 (A. P. Dodd).

Type.—I. 5092, South Australian Museum. A female on a tag, antennae and forewings on a slide.

PANTOLYTOIDEA RUFINOTUM, n. sp.

♀. Black; thorax dorsad brilliant chestnut or reddish-brown, the metanotum black, also a large blotch involving most of each parapside, and another at cephalic third of median lobe; legs wholly golden-yellow; scape reddish-yellow, the pedicel and funicle joints deep-red, the club black. Abdomen not plainly wider than the thorax, two and a half times as long as wide. Forewings as in *splendida*, the marginal vein a little longer. Pedicel two-thirds longer than wide, the funicle joints narrower, the first two and a half times as long as wide; 2-6 shortening, the sixth as wide as long; club 7-jointed, joints 1-6 distinctly wider than long. Length, 2·55 mm.

Hab.—Queensland: Yungaburra, 2,500 ft. Described from one female caught by sweeping in jungle, May 8, 1915 (A. P. Dodd).

Type.—I. 5093, South Australian Museum A female on a tag, antennae and forewings on a slide.

PANTOLYTOIDEA CASTANEICORPUS, n. sp.

♀. Chestnut or golden-brown, the metanotum and petiole darker, the head and sides of thorax nearly black; legs golden-yellow, also basal eight antennal joints, the next six joints fuscous, the apical joint pale yellow. Abdomen somewhat wider than the thorax, slightly over twice as long as wide. Forewings as in *splendida* and *rufinotum*. Pedicel nearly twice as long as wide, the first funicle joint a little narrower, two and a half times as long as wide; 2-5 shortening, the fifth as wide as long; club 8-jointed, the joints all wider than long, except the last. Length, 3·15 mm.

Hab.—Queensland: Childers. Described from one female caught by sweeping in forest, July 2, 1914 (A. P. Dodd).

Type.—I. 5094, South Australian Museum. A female on a tag, antennae and forewings on a slide.

PANTOLYTOIDEA NIGRICANS, n. sp.

♀. Black; pronotum, parapsidal furrows, posterior margins of median lobe of scutum, margins of scutellum, and first eight antennal joints red; the legs rather paler. Structure as in *castaneicorpus*.

Hab.—New South Wales: Upper Tweed River. Described from one female caught by sweeping in open forest, 1,000 ft., May 17, 1914 (A. P. Dodd).

Type.—I. 5095, South Australian Museum. A female on a tag, antennae, head, and forewings on a slide.

PSILOMMELLA, n. g.

♀. Head normal, globular, the antennal prominence conspicuous; eyes rather large; ocelli rather large, close together; maxillary palpi long, 5-jointed, the labials 3-jointed; mandibles small. Antennae 15-jointed; scape long and slender; pedicel and funicle joints not long; the club 6-jointed. Thorax stout; pronotum not visible from above; parapsidal furrows complete and distinct; scutellum with a deep depression at base, caudad and laterad of this irregularly rugose-sulcate; postscutellum short, its caudo-lateral angles semi-acute; metanotum with a median carina. Petiole very long, about six times as long as wide, viewed from the side distinctly convex dorsad; carinate. Body of abdomen ovate, pointed at apex; no longer than petiole, and one-half longer than greatest width; flat above, convex beneath, the second segment occupying most of surface. Forewings ample; submarginal vein distant from the costa and joining it at nearly half the wing length; marginal vein long; stigmal moderately long, its apex curved and pointed distad, one-third as long as the marginal; basal vein distinct, the median indicated by a brown line beyond junction of basal vein; radial not indicated, the recurrent indicated, directed towards junction of basal and median veins. Hindwings with a costal vein; without a closed basal cell. Scutum very convex from cephalad. Body of abdomen composed of three segments only.

The long petiole and semirugose scutellum will serve, *inter alia*, to distinguish the genus. Running, in Kieffer's table, 1910, near *Pantolyta*, Foerster. *Type.*—The following species.

PSILOMMELLA PETIOLATA, n. sp.

♀. Black; legs blood-red, the coxae and posterior femora and tibiae washed with dusky; first ten antennal joints clear testaceous, the apical five dusky-black; tegulae fulvous. Forewings long and broad; a little infuscate, with a darker obscure blotch in centre just beyond marginal vein; venation fuscous. Head and scutum with numerous scattered punctures, not large; lateral lobes of scutum faintly depressed. Pedicel quadrate; the first funicle joint a little longer, one-third longer than wide, 2-7 gradually shortening, the seventh a little wider than long; club joints, except the last, wider than long.

Hab. -New South Wales: Upper Tweed River. Described from one female caught by sweeping in forest, 1,000 ft., May 17, 1914 (A. P. Dodd).

Type.—I. 5096, South Australian Museum. A female on a tag, head, antennae, and wings on a slide.

MEUSELIA, Kieffer.

A European genus previously containing but one species, *M. fuscicornis*, Kieffer. The species described below may, on account of the thickened scape, nonclavate antennae, and shorter apical abdominal segment, form a new genus, but the characters appear hardly sufficient for that purpose.

MEUSELIA AUREIPES, n. sp.

♀. Dull black; legs wholly golden-yellow, also antennal scape and pedicel. Antennae 15-jointed; scape thickened, as long as next three joints combined; pedicel one-half longer than wide, the first funicle joint a little longer; flagellum not clavate, joints 2-12 subequal, wider than long. Mandibles small. Maxillary palpi slender. Parapsidal furrows deep. and complete; the thorax convex dorsad; scutellum with a circular fovea at base; metanotum tricarinate. Forewings long and broad; a little infuscate; marginal vein long, several times longer than wide; radial cell closed, triangular, as long as the marginal vein; recurrent vein indistinct, directed towards junction of median and basal veins; discoidal only faintly indicated. Femora somewhat thickened, especially the hind pair. Abdomen composed of seven segments; petiole not twice as long as wide, carinate; body of abdomen ovoid, barely more than twice as long as greatest width, gently convex above and below; segments after the second slightly more than half as long as that segment; 3-5 very short, 6 longer, 7 still short, but as long as two preceding segments united. Length, 2·05 mm.

Hab.—Queensland: Bundaberg. Described from one female caught by sweeping in forest, June 26, 1914 (A. P. Dodd).

Type.—I. 5097, South Australian Museum. A female on a tag, head, antennae, and forewings on a slide.

ACLISTA, Foerster.

A world-wide genus of over 70 species; Kieffer has described one species from Australia. The two species described herewith are placed here provisionally, since, being apterous, their position is quite uncertain.

ACLISTA AUSTRALIENSIS, Kieffer.

Berlin Ent. Zeitschr., vol. li., 1907, p. 264. Australia.

ACLISTA LEAI, n. sp.

♀. Bright chestnut-brown, the petiole and sides of thorax somewhat darker, the apical half of second abdominal segment black; eyes and ocelli black; legs clear testaceous, also the antennae. Apterous. Eyes small: ocelli minute. Scutum with deep complete parapsidal furrows and numerous scattered pin-punctures; scutellum with a deep fovea at base, smooth; median carina of metanotum distinct. Abdomen composed of eight segments; petiole stout, a little longer than wide, somewhat swollen laterally, with a median carina only, its surface somewhat roughened and with stiff black and finer white setae; body of abdomen stout, distinctly wider than the thorax, ovate, about twice as long as greatest width, with several depressions and striae at its base, the second segment occupying two-thirds of surface; 3-6 very short, the last two a little longer. Antennae 15-jointed; scape as long as next five joints combined; pedicel one-half longer than wide; first funicle joint longer, twice as long as wide, the second quadrate; 3-12 wider than long, the apical seven or eight joints slightly widened. Mandibles bidentate. Length, 3·15 mm.

Hab.—Tasmania: Mount Wellington. Two females collected by A. M. Lea, after whom the species is named.

Type.—I. 5098, South Australian Museum. Two females on a tag, head and antennae on a slide.

ACLISTA TASMANICA, n. sp.

♀. Very like *leai*, but smaller; apical third of second abdominal segment somewhat dusky, not black; second and third funicle joints a little, yet distinctly, longer than wide; thorax somewhat narrowed, the pronotum more distinct, the scutum without pin-punctures; abdomen more slender. Length, 2·25 mm.

Hab.—Tasmania: Mount Wellington (A. M. Lea).

Type.—I. 5099, South Australian Museum. A female on a tag, head and antennae on a slide.

PANTOLYTOMYIA, n. g.

♀. Head normal for the family, globular, the antennal prominence distinct; mandibles not prominent; eyes moderately large, bare; ocelli close together. Thorax as high as wide; glabrous; parapsidal furrows deep and complete, wide apart and nearly parallel; scutellum unarmed, with a circular fovea at base; postscutellum well defined, its caudo-lateral angles subacute; metanotum glabrous, with a median and lateral carinae. Petiole slender, nearly thrice as long as wide, carinate; body of abdomen somewhat wider than thorax, conic-ovate, pointed at apex, barely twice as long as greatest width, gently convex above and beneath, with a short median depression at base, the second segment occupying fully two-thirds its length. Antennae 15-jointed, with an ill-defined club of seven or eight joints; the scape slender, also the proximal funicle joints. Forewings reaching apex of abdomen, broad; split longitudinally from apex as in *Galesus*, Curtis, and other Diapriid genera; submarginal vein close to the costa at base, then curving downwards, joining the costa a little before middle of wing and thus forming a wide costal cell; marginal vein linear; the stigmal vein very long for the family, and slender, distinctly longer than the marginal, somewhat oblique; median vein distinct, curving and joining the submarginal at half the latter's length, and thus forming a well-defined basal cell; no other veins. Hindwings with a long costal vein and no others. Abdomen of six segments (counting the petiole as first).

♂. Antennae 14-jointed; pedicel short, the first funicle joint very long, the others shorter, all normal. Otherwise like the female.

The genus is distinguished, *inter alia*, by the split forewings and peculiar venation. *Type*.—The following species.

PANTOLYTOMYIA FERRUGINEA, n. sp.

♀. Bright-reddish or chestnut-brown, the coxae concolorous; petiole darker; rest of legs and basal six antennal joints bright golden-yellow, next six joints dusky-brown, the apical three pale silver-yellow. Forewings broad, subhyaline, the venation rather pale. Pedicel one-half longer than wide, subequal to third funicle joint, the first two-thirds longer, the fifth slightly longer than wide; club joints (except the last) somewhat wider than long. Length, 2·75 mm.

♂. Antennae black, the apical three joints pale yellowish: pedicel no longer than wide; first funicle joint as long as the scape and more slender, the second two-thirds its length; 2-11 gradually shortening, the eleventh nearly twice as long as wide.

Hab.—Queensland: Cairns district. Described from two males, three females, caught by sweeping in jungle. The colouration varies in intensity.

Type.—I. 5100, South Australian Museum. Two females on a tag, male and and female antennae and forewings on two slides.

NEOBETYLA, n. g.

♀. Apterous. Head normal, globular, viewed from above distinctly wider than long; eyes rather small, not as long as their distance from the occipital margin; ocelli close together; antennal prominence conspicuous; mandibles not large; maxillary palpi 5-jointed, labials 3-jointed. Antennae 15-jointed; scape long and slender; funicle joints all longer than wide; club ill defined, 7-jointed, the joints (except the last) wider than long. Thorax narrowed, distinctly narrower than the head; over twice as long as greatest width; pronotum visible on the sides; scutum distinctly longer than greatest width, without parapsidal furrows, but with a depression running all round, except on caudal margin, the central area raised and gently convex; scutellum rather small, with a deep fovea at base; postscutellum short, emarginate; metanotum covered with dense pubescence. Petiole somewhat longer than wide, not pubescent but carinate, stout, its dorsal surface with a distinct hump in centre; body of abdomen stout, ovate, much wider than thorax, convex above and beneath, without impressions or carinae at base, the second segment occupying almost all of surface; composed of four body segments.

Distinguished, *inter alia*, by the absence of parapsidal furrows.

Type.—*N. pulchricornis*.

NEOBETYLA PULCHRICORNIS, n. sp.

♀. Dark-brownish black, somewhat suffused with dark red, the coxae concolorous, the femora and tibiae more or less dusky, the tarsi testaceous; antennae red, the first three club joints dusky, the last four joints honey-yellow. Whole body with scattered long setae. Pedicel one-half longer than wide; the first funicle joint a little longer and narrower, over twice as long as wide; the others shortening, the sixth quadrate; club joints (except the last) transverse. Length, 2·65 mm.

Hab.—Queensland: Cairns district. Described from two females caught by sweeping in jungle.

Type.—I. 5101, South Australian Museum A female on a tag, head and antennae on a slide.

NEOBETYLA AUREA, n. sp.

♀. Very similar to the genotype, but the body wholly bright golden-yellow, apical two antennal joints still paler; depression of scutum shallow, the raised central portion not distinct. Length, 2·70 mm.

Hab.—Queensland: Cairns district. Described from two females caught by sweeping in coastal jungle, October 18, 1914 (A. P. Dodd).

Type.—I. 5102, South Australian Museum. A female on a tag, the antennae on a slide.

Family DIAPRIIDAE.

Numerous as are the species herewith listed, this paper must be considered merely as a preliminary index to the Australian forms. The rich jungles or scrubs of North-eastern Queensland, yielding the dampness and humidity to which the family is so addicted, must eventually produce many times the species already obtained from their precincts. The majority of the species described herein are from the jungles of the Cairns district, at elevations up to 2,500 ft., the only locality where extensive collections have been made. The remainder, mostly collected by Mr. A. M. Lea, of the South Australian Museum, and loaned by that institution, are from various localities in Eastern Australia and Tasmania; not one has been obtained from other parts of the continent. Males, as in the *Belytidae*, have been left almost entirely alone; possibly, at some future period, an attempt will be made to make known the members of that sex. Meanwhile the statement can be made that, on the whole, where the female has 12-jointed antennae those of the male are 14-jointed, and where 13 joints are present in the female the male has the same number; also it is probable that in those genera where thoracic foveae and depressions are well developed the male will possess these characters in a more modified degree. As would be expected in a new country, new genera have been found, but not to a surprising extent, and to confirm the new segregates in some instances more than one species thereof have been found. When the Papuan forms are made known, it is suggested that their relationship with the Australian forms will be found very close, and it is not unlikely that a few of the mainland species will be identical with forms from that island.

Table of Australian genera.

Females.

(1)	Wingless	(2)
	Winged	(4)
(2)	Antennae 11-jointed	*Solenopsiella*, n. g.
	Antennae 12-jointed	*Loxotropa*, Foer. (part)
	Antennae 13-jointed	(3)
(3)	Mandibles very long, falcate; maxillary palpi not more than 2-jointed	*Leaiopria*, n. g.
	Mandibles not long; maxillary palpi 5-jointed	*Paramesius*, West. (part)
(4)	Antennae 11-jointed; scutellum with five foveae at base	*Polydiapria*, n. g.
	Antennae 12-jointed	(5)
	Antennae 13-jointed	(14)
(5)	Scape abnormal; forewings split longitudinally from apex, and without venation	*Galesus*, Curtis
	Scape normal; forewings not split from apex, and always with distinct venation	(6)
(6)	Body of abdomen long, conically pointed, produced cephalad at base ventrad	*Cardiopria*, n. g.
	Body of abdomen not produced cephalad at base ventrad	(7)
(7)	Scutellum with three foveae at base; submarginal vein distant from the costa, the venation terminating at half-wing length; parapsidal furrows complete ..	*Neopria*, n. g.
	Scutellum with one or two fovea at base; submarginal vein confluent with the costa, the venation terminating before half-wing length; parapsidal furrows absent	(8)
(8)	Frons with one to three short spines or projections	*Acidopria*, Kieffer
	Frons without spines or projections	(9)
(9)	Forewings with a distinct basal vein	*Loxotropa*, Foer. (part)
	Forewings without a basal vein ...	(10)
(10)	Head, dorsal aspect, pentagonal ...	*Tetramopria*, Wasmann
	Head globular, from dorsal aspect not pentagonal	(11)

(11)	Scutellum without a depression or fovea at base	*Phaenopria*, Ashmead
	Scutellum with one or two depressions or foveae at base	(12)
(12)	Scutellum without a median carina	*Trichopria*, Ashmead
	Scutellum with a median carina ...	(13)
(13)	Anterior margin of body of abdomen raised	*Diapria*, Latreille
	Anterior margin of body of abdomen not raised	*Ashmeadopria*, Kieffer
(14)	Scutellum with five foveae at base	*Propentapria*, n. g.
	Scutellum with one or two foveae at base	(15)
(15)	Scape thickened at apex and covering base of pedicel	(16)
	Scape normal, at the most with a sharp point on either side of base of pedicel	(18)
(16)	Mouth directed somewhat backward; base of abdomen with a median impression or groove ...	(17)
	Mouth not directed backward; base of abdomen without a median impression or groove	*Hoploprirella*, n. g.
(17)	Antennal prominence, from dorsal aspect, very conspicuous; cephalic margin of abdomen incised ..	*Neurogalesus*, Kieffer
	Antennal prominence, from dorsal aspect, hidden; cephalic margin of abdomen straight	*Euhoplopria*, n. g.
(18)	Scutum with two deep impressions or foveae cephalad on median lobe	*Polypria*, n. g.
	Scutum without impressions on median lobe	(19)
(19)	Scutellum with two basal foveae, the lateral foveae present	*Bothriopria*, Kieffer
	Scutellum with one or two basal foveae, the lateral foveae absent	(20)
(20)	Forewings emargined or depressed in centre of distal margin	*Entomacis*, Foerster
	Forewings normally rounded on distal margin	(21)
(21)	Abdomen abruptly truncate at apex from lateral aspect	*Hemilexis*, Foerster
	Abdomen not truncate at apex from lateral aspect	(22)
(22)	Abdomen without impressions or striae at base	*Spilomicrus*, Westwood
	Abdomen with fine impressions or striae at base	*Paramesius*, West. (part)

Also see *Diphoropria*, Kieffer.

ENTOMACIS, Foerster.

Fourteen species have been described, from Europe, America, and the Seychelle Islands. The Australian species are all from the Cairns district, and can be separated by means of the following table:—

Table of species.

A. Parapsidal furrows wanting.
  Antennae long, most of the joints nodicorn, the apical three joints contrasting pale silver-yellow ... ... *elegans*
B. Parapsidal furrows complete.
  Abdomen broadly truncate at apex; funicle joints not moniliform, the basal joints long, the first not narrower than second *australis*
  Abdomen not broadly truncate at apex; funicle joints mostly moniliform, the basal joints not long, the first somewhat narrower than second . .. . *monilicornis*

ENTOMACIS AUSTRALIS, n. sp.

♀. Head and abdomen coal-black, the thorax and petiole (except caudad) bright red-brown; antennal scape and the legs golden-yellow; rest of antennae fuscous. Head, dorsal aspect, much wider than long; eyes large, bare; thorax convex; parapsidal furrows wide apart, complete and distinct; scutellum with a large circular fovea at base; metanotum long, with a median carina; head, scutum, and scutellum smooth, impunctate. Petiole feebly striate, fully twice as long as wide; the second segment not raised from petiole; body of abdomen as long and as wide as thorax, abruptly truncate at apex, the second segment occupying almost all of surface. Forewings long, broad, almost hyaline; the distal margin somewhat depressed at meson; marginal cilia not very long; venation terminating slightly before middle of wing; marginal vein somewhat longer than the rather long stigmal; basal and median veins not present. Antennae 13-jointed; scape slender, long; pedicel over twice as long as wide; funicle incrassate, the first joint narrower than pedicel and fully four times as long as wide; joints 6-10 not twice as long as wide, their distal margins truncate. Length, 1·65 mm.

Hab.—Queensland: Cairns district. Many females caught by sweeping in lowland jungle, September 27, 1914 (A. P. Dodd).

Type.—I. 5103, South Australian Museum. A female on a tag, a female on a slide.

ENTOMACIS MONILICORNIS, n. sp.

♀. Head and abdomen dull-black; thorax dark dull-brown, the metanotum lighter, also abdominal petiole; legs and first three antennal joints intense lemon-yellow, rest of antennae black. Eyes not especially large. Parapsidal furrows rather wide apart, not very distinct. Marginal and stigmal veins rather shorter than in *australis* and *elegans*. Abdomen rounded at apex. Antennal scape slender; pedicel fully twice as long as wide: first funicle joint distinctly shorter and narrower than pedicel, and a little narrower than second, twice as long as wide; 2-10 more or less moniliform, the tenth as wide as long. Length, 1·25 mm.

Hab.—Queensland: Cairns district. Described from one female caught by sweeping in heart of jungle, 1,500 ft., September 12, 1913.

Type.—I. 5104, South Australian Museum. A female on a tag, antennae and forewing on a slide.

ENTOMACIS ELEGANS, n. sp.

♀. Bright reddish or chestnut-brown, the legs golden-yellow, also the antennal scape; next nine joints brown, the apical three pale silver-yellow; eyes and ocelli black. Eyes not especially large; parapsidal furrows absent; head not much wider than long (dorsal aspect). Abdomen broadly truncate at apex. Forewings rather more slender than in *australis*, the marginal cilia longer. Antennae slightly widening toward apex; scape slender, claviform: pedicel slender, nearly thrice as long as greatest breadth: first eight funicle joints more or less nodicorn, the basal ones very slender, the first narrower and distinctly longer than pedicel, several times as long as wide; 8-10 with their distal margin more or less truncate, the tenth one-third longer than wide. Length, 1·75 mm.

Hab.—Queensland: Cairns district. Described from two females caught by sweeping in lowland jungle, May 8, 1914 (A. P. Dodd).

Type.—I. 5105, South Australian Museum A female on a tag, antennae and forewings on a slide.

HEMILEXIS, Foerster.

This genus differs from *Entomacis*, Foerster, only in that the forewings are normally rounded at apex. Four species have been described hitherto, two from Europe, one from North America, and one from New Guinea.

HEMILEXIS TRUNCATA, n. sp.

♀. Dull-black, the thorax dark red-brown, the scutellum lighter, the metanotum bright-ochreous; legs and petiole golden-yellow, also the antennal scape, the rest of the antennae fuscous. Head globular, smooth; also the scutum and scutellum; parapsidal furrows complete and distinct; scutellum with one large fovea only, at its base. Petiole slender, almost thrice as long as wide, with several carinae dorsad; body of abdomen without impressions at base, widening toward apex of second segment, where it is almost truncate, viewed from the side abruptly declivous at apex of this segment. Forewings ample, broad; subhyaline; venation terminating somewhat before half wing-length; marginal vein linear, rather long; the stigmal long, over one-half length of marginal; basal thick and distinct, the median indistinct. Antennae slender, 13-jointed; without a distinct club, the last five or six joints gently incrassate; pedicel twice as long as wide; the first funicle joint narrower and longer, five or six times as long as wide; 2-10 shortening, the tenth a little longer than wide. Length, 1·55 mm.

Hab.--Tasmania: Mount Wellington (A. M. Lea).

Type.—I. 5106, South Australian Museum. A female on a tag, antennae and forewings on a slide.

SPILOMICRUS, Westwood.

A genus containing over fifty species from all over the world. The Australian species are not numerous.

SPILOMICRUS GRACILIS, n. sp.

♀. Dull-black; legs, petiole of abdomen, and antennal scape golden-yellow; metathorax reddish, the antennae fuscous. Head, dorsal aspect, distinctly wider than long; scutum and scutellum smooth, shining; parapsidal furrows deep and distinct; scutellum with one large fovea at base; metanotum with an elevated median carina. Petiole of abdomen very slender, four times as long as wide; body of abdomen gently convex above and beneath; viewed from above, conic-ovate, about as long and as wide as the thorax, the second segment occupying most of surface, without impressions at base. Forewings reaching beyond apex of abdomen; broad; hyaline; marginal cilia long; venation terminating a little before middle of wing; marginal vein short, not as long as the perpendicular stigmal; basal vein distinct, the median less so. Antennae 13-jointed; scape slender; pedicel over twice as long as wide, funicle joints very slender, much narrower than pedicel, first about five times as long as wide, 2-5 shortening, but much longer than wide, next six joints forming a slender club, of which joints 1 and 2 are a little longer than wide, 3-5 quadrate. Length, 1·40 mm.

Hab.—New South Wales: Tweed River. Described from one female caught by sweeping miscellaneous vegetation along a roadside, May 11, 1914 (A. P. Dodd).

Type.--I. 5107, South Australian Museum. A female on a tag, antennae and forewings on a slide.

Spilomicrus quadriceps, Smith.

Trans. Ent. Soc., London, 1878, p. 6. Australia.

Paramesius, Westwood.

A large genus, containing over forty species from all over the world. The Australian species may readily be separated by the following table:—

Table of species.

A. Apterous.
  Male; head with numerous punctures;
    scutellum without foveae at base ... .. *punctatus*
  Female; head not punctate; scutellum
    with two foveae at base ... ... *aureicorpus*
B. Winged; females.
  Parapsidal furrows present; scutellum with
    two foveae at base; forewings not
    reaching beyond apex of abdomen ... *leander*
  Parapsidal furrows wanting; scutellum
    with one fovea at base; forewings
    reaching well beyond apex of abdomen *grandipennis* (1)

Paramesius aureicorpus, n. sp.

♀. Bright brownish-yellow, last three antennal joints darker brown; eyes and ocelli black. Body shining, impunctate. Head subquadrate, a little wider than long (dorsal aspect), wider than the thorax; eyes rather small; ocelli minute. Thorax slender, over twice as long as wide; pronotum visible on the sides; parapsidal furrows absent; scutellum with two foveae at base, separated by a thin carina; body with scattered hairs. Petiole barely as long as wide; body of abdomen as long as head and thorax united, wider than thorax, rounded at apex, with a median impression at its base. Apterous. Antennae 13-jointed: scape long, cylindrical; pedicel one-third longer than wide; first funicle joint distinctly narrower, as long as wide, 2-8 short, transverse, the eighth somewhat widened; club abrupt, 3-jointed, joints 1-2 wider than long. Length, 1·65 mm.

Hab.—Tasmania: Mount Wellington (A. M. Lea).

Type.—I. 5108, South Australian Museum. A female on a tag, the antennae on a slide.

Paramesius leander, n. sp.

♀. Reddish or chestnut-brown, the head almost black; antennae red, the funicle dusky, the club black; legs golden-yellow. Thorax shining, with a few scattered long setae; parapsidal furrows deep and complete; scutellum with two large foveae at base, and a line of small foveae along its caudal

---

(1) *Angusticornis* falls here; see description.

margin; metanotum with a raised tooth at base. Petiole a little longer than wide; body of abdomen about as long and as wide as the thorax; convex above and beneath; not well separated from petiole, with a short median impression and several shorter striae at base; second segment occupying fully two-thirds of surface. Forewings attaining apex of abdomen, broad; almost hyaline; venation terminating about middle of wing; marginal vein linear, the stigmal over one-half as long as the marginal, the recurrent indicated, the basal rather distinct, the median less so. Antennae 13-jointed; scape rather long and slender; pedicel barely one-half longer than wide; first funicle joint narrower than pedicel, about one-half longer than wide, 2-7 shortening, the seventh transverse; club stout, 4-jointed, the first joint much narrower than others, 1-3 much wider than long. Length, 1·95 mm.

Hab.—Queensland: Cairns district. Described from one female caught by sweeping on edge of jungle, May 18, 1913 (A. P. Dodd).

Type. -I. 5109, South Australian Museum. A female on a tag, antennae and forewings on a slide.

PARAMESIUS GRANDIPENNIS, n. sp

♀. Black, the thorax and petiole bright red-brown; legs and first eight antennal joints golden-yellow, the two next brown, the apical three black. Head subquadrate, wider than long (dorsal aspect), smooth, as also the thorax. Parapsidal furrows wanting; scutellum with one large fovea at base; metanotum with a plain median carina Petiole slender, over thrice as long as wide; body of abdomen oval, pointed at apex, with a short median impression at base. Forewings very long, reaching well beyond apex of abdomen, broad; a little infuscate; marginal cilia rather long; venation terminating somewhat before middle of wing; marginal vein linear, no longer than the long stigmal; basal vein thick and distinct, the median indistinct. Scape slender; pedicel fully twice as long as wide; the first funicle joint narrower, nearly thrice as long as wide, 2-6 shortening, but all distinctly longer than wide, the sixth slightly widened; club gradual, 5-jointed, first joint narrower than others and a little longer than wide, 2-4 a little wider than long. Length, 2·05 mm.

Hab.—Tasmania: Mount Wellington (A. M. Lea).

Type. -I. 5110, South Australian Museum. A female on a tag, antennae and forewings on a slide.

PARAMESIUS PUNCTATUS, n. sp.

♂. Head and thorax dark red-brown, the abdomen and legs golden-yellow, also the basal four antennal joints, the next five joints dark red-brown, the apical four pale honey-yellow. Head, viewed from above, subquadrate, distinctly wider than long; eyes large, bare; ocelli absent; with numerous small setigerous punctures. Thorax slightly narrower than the head; scutum and scutellum glabrous, with a very few small scattered punctures; parapsidal furrows wanting: scutellum much wider than long, without foveae at base: metanotum of moderate length. Petiole of abdomen as wide as long; body of abdomen oval, distinctly wider than thorax, with a short median impression at base. Antennae 13-jointed; scape rather long and slender; pedicel no longer than wide, the first funicle joint slightly longer, the second much longer, nearly twice as long as first, remaining joints (except the last) moniliform, slightly incrassate, all a little wider than long. Wings entirely wanting. Length, 1·70 mm.

Hab.—Queensland: Mount Tambourine. One male, labelled "Rotten leaves, A. M. Lea."

Type.—I. 5111, South Australian Museum. A male on a tag, antennae on a slide.

Wingless male forms are very rare among the Micro-Hymenoptera. This species probably does not belong to *Paramesius*, on account of its entire scutellum, but it agrees very well otherwise with that genus.

PARAMESIUS ANGUSTICORNIS, n. sp.

♀. Thorax and petiole dull-brown, the head and abdomen black; legs golden-yellow; antennae fuscous, the scape more or less yellow. Form slender; head subglobose; scutum without parapsidal furrows; scutellum with one large fovea at base; metanotum with a raised medial scale. Petiole thrice as long as wide; body of abdomen oval, the second segment occupying almost all of surface, with a long median impression at base. Forewings reaching beyond apex of abdomen; not very broad; somewhat darkly infuscate; marginal cilia long; venation terminating somewhat before middle of wing; marginal vein scarcely longer than the rather long stigmal, the basal thick and distinct. Scape slender; pedicel twice as long as wide; the funicle joints narrower, the first about thrice as long as wide, the sixth fully twice as long as wide; club gradual, 5-jointed, first joint narrower than others, 2-4 all somewhat longer than wide Length, 1·50 mm.

Hab.—Queensland: Cairns district. Described from one female caught by sweeping in coastal jungle, June 6, 1915 (A. P. Dodd).

Type.—I. 5112, South Australian Museum. A female on a tag, antennae and forewings on a slide.

Very similar to *grandipennis*, but the forewings are much narrower and the club joints are a little longer.

BOTHRIOPRIA, Kieffer.

Formerly contained only one species, from Madagascar. The Australian species differ from certain species of the genus *Hoplopriella*, Dodd, only in having the scape not swollen at its apex, and covering base of pedicel. In one species, *aureipes*, the scape terminates in two sharp points, which Kieffer uses as a generic difference to distinguish *Hoplopria*, Ashmead; the character is too trivial, however, for generic significance, and Ashmead himself did not mention it; thus other characters must be found to distinguish that genus, and may be found in "the carina that runs from the ocelli to the occipital margin and the groove separating the eyes from the antennal prominence" (freely translated from Kieffer). From *Paramesius*, Westwood, and *Spilomicrus*, Westwood, *Bothriopria* differs in having lateral foveae on the scutellum, which in the Australian species are always narrow and obscure.

Table of species.

A. Parapsidal furrows complete and deep.
  (1) General colour chestnut-red ... ... *leai*
  (2) Colour of body wholly black.
    (a) Petiole one-half longer than wide *victoriae*
    (b) Petiole two and a half times as long as wide ... ... *unicolor*
B. Parapsidal furrows incomplete, abbreviated cephalad.
  (1) Antennae wholly black; scape produced into acute points at apex ... ... *aureipes*
  (2) Scape not produced into acute points at apex.
    (a) Pedicel distinctly shorter than first funicle joint ... ... *splendida*
    (b) Pedicel not shorter than first funicle joint.
      Second funicle joint no longer than wide ... ... *atra*
      Second funicle joint distinctly longer than wide ... ... *infuscipes*

BOTHRIOPRIA SPLENDIDA, n. sp.

♀. Black; tegulae, legs, and first five antennal joints golden-yellow. Head normal, the vertex much wider than long, with a few minute setigerous punctures, also the scutum and scutellum; scutum convex, the parapsidal furrows one-half complete from caudad, deep and distinct, the sclerite without depressions; scutellum with two very large, irregularly circular foveae at base, and a very narrow shallow one along either side; metanotum with a raised median carina at base. Petiole one-half longer than wide, with several fine carinae and somewhat pubescent; body of abdomen not raised from petiole, but without impressions at base: ovate, pointed at apex; somewhat convex above and beneath; the second segment occupying a little more than one-half of surface, the remainder minutely densely punctate; abdomen suffused with brown. Forewings long and very broad; a little infuscate, with a white longitudinal stripe through centre; venation terminating about middle of wing, the marginal vein thickened, thrice as long as width at base, one-half longer than the stigmal; basal vein very distinct, the median well marked for some distance beyond juncture of basal. Antennae 13-jointed; scape slender; pedicel twice as long as greatest width, the first funicle joint a little narrower and distinctly longer, nearly four times as long as greatest width, the second one-half length of first, the fifth quadrate, a little widened; club ill-defined, scarcely wider than funicle, 6-jointed (7-jointed ?), joints 1-5 almost subequal, scarcely wider than long, the last joint two-thirds longer than preceding. Length, 3·50 mm.

Hab.—Queensland: Mount Tambourine (A. M. Lea).

Type.—I. 5113, South Australian Museum. A female on a tag, antennae and forewing on a slide.

BOTHRIOPRIA LEAI, n. sp.

♀. Polished chestnut-brown, the tegulae and legs lighter, the head black; antennae fuscous, the basal three joints deep red. Parapsidal furrows deep and complete; foveae at base of scutellum large, circular, these separated only by a thin carina, the lateral foveae shallow and narrow; metanotum with a raised median carina. Petiole a little longer than wide, with fine obscure carinae and some pubescence; body of abdomen as in *splendida*. Forewings as in *splendida*, but the marginal vein shorter, scarcely longer than the stigmal. Pedicel stout, barely one-half longer than wide; the first funicle joint scarcely narrower and somewhat longer, over twice as long as wide, the second as wide as long, 3-5 somewhat wider than long; club 6-jointed, slightly wider than funicle, joints 1-5 subequal, distinctly wider than long, the last joint distinctly longer. Length, 2·70 mm.

Hab.—Queensland: Cairns district (A. M. Lea).

Type.—I. 5114, South Australian Museum. A female on a tag, antennae and forewing on a slide. Named in honour of the collector.

BOTHRIOPRIA UNICOLOR, n. sp.

♀. Black, the tegulae and antennae wholly black; legs bright red, the femora somewhat dusky. Parapsidal furrows deep and complete; foveae at base of scutellum large, circular, only separated by a thin carina; metanotum with an acute erect scale at base, caudo-lateral angles with two points, one above the petiole, the other lower down. Petiole two and a half times as long as wide, with several strong carinae dorsad; body of abdomen distinctly raised from petiole, rounded caudad, the second segment occupying fully three-fourths of surface. Forewings long, moderately broad; marginal vein twice as long as wide, the stigmal short, the basal delicate, the median obsolete. Pedicel twice as long as wide, the funicle joints somewhat narrower, the first thrice as long as wide, the second one-half longer than wide, the fifth distinctly longer than wide; club 6-jointed, first joint narrower than others, as long as wide, 2-5 distinctly wider than long, the last joint a little longer than preceding. Length, 2·50 mm.

Hab.—New South Wales: Tweed River. Described from one female caught by sweeping foliage of jungle plants, May 13, 1914 (A. P. Dodd).

Type. -I. 5115, South Australian Museum. A female on a tag, antennae and forewings on a slide.

BOTHRIOPRIA VICTORIAE, n. sp.

♀. Black, the antennae concolorous, also the tegulae; legs reddish-yellow, the coxae, femora, and apical half of tibiae dusky. Foveae at base of scutellum distinctly separated; caudo-lateral angles of metanotum without sharp points; petiole one-half longer than wide; first funicle joint twice as long as wide, the second one-third longer than wide, the fifth scarcely so, the sixth only slightly widening and not appearing part of club, the club thus 5-jointed, the last joint no longer than preceding. Otherwise as in *unicolor*. Length, 2·35 mm.

Hab. -Victoria: Ballarat district. One female, labelled "National Museum, No. 54."

Type. In the National Museum, Melbourne. A female on a tag, the antennae on a slide.

BOTHRIOPRIA ATRA, n. sp.

♀. Black, the tegulae and antennae concolorous; legs clear golden-yellow. Parapsidal furrows less than one-half complete from caudad, rather narrow; foveae at base of scutellum moderately large, circular, distinctly separated, the lateral foveae shallow, obscure; metanotum with an acute raised scale at base, its caudo-lateral angles simple. Petiole scarcely longer than wide, with several carinae dorsad; body of abdomen somewhat raised from petiole, rounded caudad, the second segment occupying almost two-thirds of surface, the remaining segments densely minutely punctured. Forewings moderately long and broad; faintly infuscate; marginal vein twice as long as wide, the stigmal very short, the basal barely indicated. Pedicel two-thirds longer than wide, the funicle joints somewhat narrower, the first twice as long as greatest width, the second as wide as long, the fifth wider than long; club 6-jointed, joints 1-5 distinctly wider than long, the sixth a little longer than preceding. Length, 2·15 mm.

Hab.—Queensland: Cairns district. Described from one female caught by sweeping in jungle, 1,200 ft., April 3, 1915 (A. P. Dodd).

Type.—I. 5116, South Australian Museum. A female on a tag, antennae and forewings on a slide.

BOTHRIOPRIA AUREIPES, n. sp.

♀. Black, the legs golden-yellow; tegulae suffused with yellow, the antennae wholly black. Scutum flat, the parapsidal furrows present only as short, rather narrow grooves against caudal margin; foveae at base of scutellum not very large, circular, well separated, the lateral pair shallow and obscure; metanotum without a distinct raised scale at base. Petiole scarcely longer than wide, with several dorsal carinae; body of abdomen a little raised from petiole, rather long, over twice as long as greatest width, rounded caudad, the second segment occupying three-fourths of surface. Forewings moderately long and broad, faintly infuscate; marginal vein barely twice as long as wide, the stigmal very short, the basal scarcely indicated. Scape terminating in a sharp point on either side of base of pedicel; pedicel nearly twice as long as wide, the funicle joints somewhat narrower, the first almost twice as long as wide, the second a little longer than wide, the fifth somewhat wider than long; club 6-jointed, joints 1-5 distinctly wider than long, the first narrower than the others, the last joint no longer than preceding. Length, 1·75 mm.

Hab.—Queensland: Yungaburra, 2,500 ft. Described from one female caught by sweeping in jungle, May 9, 1915 (A. P. Dodd).

Type.—I. 5117, South Australian Museum. A female on a tag, antennae and forewings on a slide.

BOTHRIOPRIA INFUSCIPES, n. sp.

♀. Black; legs fuscous, the coxae washed with yellow, the trochanters, tarsi, and base of tibiae yellow; antennal joints 2-5 yellow, the rest black; tegulae black. Scutum not flat, the metanotum with a small semi-acute scale at base; structure of thorax otherwise as in *aureipes*. Petiole twice as long as wide; body of abdomen oval, somewhat raised from petiole, barely twice as long as greatest width, pointed caudad, the second segment occupying barely two-thirds of surface. Forewings with an obscure blotch beneath marginal vein, the basal vein delicate but rather distinct, otherwise much as in *aureipes*. Pedicel nearly twice as long as greatest width, the funicle joints somewhat narrower, the first fully twice as long as greatest width, the fifth one-half longer than wide; club 6-jointed (5-jointed ?), the first joint narrower than others, longer than wide, 2-5 barely wider than long, the last joint somewhat longer. Length, 1·60 mm.

Hab.—Queensland: Yungaburra, 2,500 ft. One female, taken with *aureipes*.

Type.—I. 5118, South Australian Museum. A female on a tag, antennae and forewings on a slide

POLYPRIA, n. g.

♀. Head, viewed from above, distinctly wider than long, the vertex with two or three obtuse raised ridges across it, and scattered punctures; eyes large, bare; ocelli large; antennal prominence small, inconspicuous; maxillary palpi 5-jointed, the labials 3-jointed. Antennae 13-jointed; scape normal: funicle joints longer than wide; club 5-jointed, not well defined. Mandibles not large or prominent, at least one bidentate at apex. Forewings ample; venation terminating slightly before middle of wing; marginal vein barely twice as long as wide, the stigmal very short; basal and median veins not distinct. Scutum with deep complete parapsidal furrows; lateral lobes with a large, deep, circular depression, the median lobe with a large, deep oval depression on either side of meson cephalad. Scutellum with two large foveae at base, and one on either side. Metanotum tricarinate, without a raised scale at base. Petiole of abdomen striate, nearly thrice as long as wide; body of abdomen well raised from petiole, ellipsoidal, somewhat longer than thorax, gently convex above and beneath, the second segment occupying most of surface, without depressions at base.

♂. Median lobe of scutum without depressions, the lateral lobes only faintly depressed. Antennae 13-jointed, the funicle joints long and slender, cylindrical, the first and second subequal, plain.

The male antennae are like those of *Odontopria*, Kieffer, but that genus has the head coarsely punctured and the scutum with four grooves. *Hexapria* has the depressed lateral lobes of the scutum in the female (the male is unknown), but there are two distinct foveae against caudal margin of scutellum. The new genus is like *Bothriopria*, and is separated by the depressions on the scutum: these same characters were not thought sufficient to form a new genus in the case of some of the Australian species of *Hoplopriella*, but the depressions were not so deep and distinct, and gave indications of grading.

Running in Kieffer's table to *Hexapria*, Kieffer, or *Bothriopria*, Kieffer. *Type*, the following species.

Polypria nigriventris, n. sp.

♀. Black; legs and tegulae golden-yellow, the femora and tibiae somewhat dusky; prothorax and mesothorax dark deep-red; antennae black, the last joint pale-yellow, the preceding washed with yellow. Forewings long and broad; a little infuscate, with an obscure blotch beginning beyond basal vein, this area with a white curved longitudinal streak. Pedicel a little shorter than first funicle joint, which is twice as long as wide, the others shortening, the sixth a little longer than wide; club joints 1-4 wider than long, the fifth small, narrower, and no longer than preceding. Length, 2·70 mm.

♂. Antennae black, the last joint pale-yellow; first funicle joint fully twice as long as pedicel; 3-10 shortening, the tenth over twice as long as wide.

Hab.—Queensland: Cairns district. Described from several specimens of either sex: a common species in and around jungle.

Type. I. 5119, South Australian Museum. A male and female on two tags; female head and antennae, male antennae, and forewings on a slide.

Neurogalesus, Kieffer.

♀. Head quadrate, viewed from above, the vertex very much roughened, its surface with obtuse irregular carinae and large shallow punctures (in *dissimilis* distinctly less roughened and the punctures smaller); with a depression in centre against occipital margin, running toward ocelli; antennal prominence very large and conspicuous, when viewed from above projecting conspicuously beyond the frons and not much wider than long; face straight from antennal prominence to caudal margin (ventrad), the mandibles thus projecting backwards; eyes large, bare. Scutum with deep complete parapsidal furrows, the lateral lobes feebly or deeply depressed, the median lobe sometimes with a depression on either side cephalad and one caudad, these sometimes absent; scutellum with two large foveae at base, and one along either side; metanotum with a raised scale at base, its posterior margin rather deeply excavated. Petiole stout, scarcely wider than long, its lateral margins with a sharp excision or only feebly swollen, covered with long pubescence, or this only present on its sides, the dorsum then showing carinae. Body of abdomen not raised from petiole, its dorsal surface flat, its cephalic margin incised, with a long deep median groove or impression at base, scarcely wider across centre than at base, the second segment occupying most of surface. Forewings ample; venation terminating about middle of wing; marginal vein thickened, about twice as long as wide, the stigmal very short; no basal or median veins. Antennae 13-jointed; scape prolonged at apex and covering base of pedicel; club ill-defined, about 5-jointed. For other characters see Kieffer's diagnosis.

Table of species.

A. Abdomen with three grooves at base; stigmal vein one-half longer than the marginal *carinatus*

B. Abdomen with one groove at base; stigmal vein very short.

- (1) Median lobe of scutum with two depressions cephalad, the lateral lobes with a deep fovea or depression; vertex on either side of median impression, more or less roughened; petiole sharply excised on lateral margins.
  - *(a)* Scutellum longitudinally striate *hackeri*
  - *(b)* Scutellum not striate ... . *grandis*
- (2) Median lobe of scutum without depressions cephalad, the latter lobes only feebly depressed; vertex on either side of median impression at the most with a few punctures; petiole feebly swollen on lateral margins.
  - *(a)* Vertex with a few large punctures; legs and antennal funicle red; carina running from above eye, conspicuous; first funicle joint distinctly shorter than pedicel . . . . *rubripes*
  - *(b)* Punctures on vertex small; legs mostly black, the antennae wholly so; carina running from above eye, not conspicuous; first funicle joint not shorter than pedicel .. .. *dissimilis*

NEUROGALESUS CARINATUS, Kieffer.

The type and only previously described species is from Australia, and its description appeared in the "Berlin Ent. Zeitschr.," vol. li., p. 298 (1907). The original description is not available in Northern Queensland, but from Kieffer's generic diagnosis it is evident that *carinatus* differs from all the species described in this paper, thus *carinatus* has three longitudinal grooves at base of abdomen, and the stigmal vein is a half longer than the marginal. *Dissimilis* does not possess the carina running from above the eye to near the antennal prominence present in the other three species, but in (apparently) having the head less roughened, the absence of the cephalic depressions on the median lobe of the scutum, the non-incised tricarinate petiole, *carinatus* approaches closer to *dissimilis* than to *grandis* or *hackeri*. In length it is even larger than *grandis*. Length, 5·5 mm.

NEUROGALESUS GRANDIS, n. sp.

♀. Black; legs concolorous, the knees and tarsi ferruginous, the antennae also concolorous, the last joint contrasting light-reddish, the four basal funicle joints washed with red. Head much roughened, the punctures large. Scutum and scutellum with large scattered punctures, the depressions of scutum deep and distinct; foveae at base of scutellum longitudinally oval, extending for about two-thirds its length, beyond this smooth. Petiole sharply excised on lateral margins, covered with long pubescence; body of abdomen smooth, highly polished, as long as the head and thorax united, distinctly more than twice as long as greatest width. Forewings attaining apex of abdomen; very broad; embrowned, this deepest in centre Pedicel one-half longer than wide, the first funicle joint slightly narrower and distinctly longer, nearly thrice as long as wide, 2-6 shortening, the sixth quadrate; club joints 1-4 wider than long, the fifth distinctly over twice as long as wide. Length, 5 mm.

Hab.—Queensland: Cairns district. Described from one female caught by sweeping in coastal jungle, September 27, 1914 (A. P. Dodd).

Type.—I. 5120, South Australian Museum. A female on a tag, antennae and forewings on a slide.

NEUROGALESUS HACKERI, n. sp.

♀. Similar to *grandis*, but differs as follows:—Apical antennal joint concolorous with preceding; club joints 1-4 rather less wider than long; abdomen not so slender, no more than twice as long as greatest width; depressions of median lobe of scutum shallower; head and scutum with less distinct punctures; foveae of scutellum shallower, the basal ones much shorter, not extending one-half its length, beyond these longitudinally striate. Length, 4·85 mm.

Hab.—Queensland: Brisbane. Described from one female received from the Queensland Museum, and labelled "Caloundra, September 28, 1913 (H. Hacker); on tree trunk."

Type.—In the Queensland Museum. A female on a tag, the antennae and forewings on a slide. Named in honour of the collector.

NEUROGALESUS DISSIMILIS, n. sp.

♀. Similar to *grandis* but smaller, the antennae wholly black; head less roughened, the punctures on it and the thorax not large; median lobe of scutum almost smooth, with only a faint depression caudad; foveae at base of scutellum not reaching half its length; lateral lobes of scutum with feeble depressions; petiole not excised on lateral margins, only feebly swollen, the dense pubescence only present on the sides, the meson tricarinate; first funicle joint twice as long as wide, the sixth distinctly wider than long; last club joint shorter, not twice as long as wide. Length, 3·55 mm.

Hab.—Queensland: Kuranda. Described from one female caught by sweeping in jungle, April 4, 1915 (A. P. Dodd). A second female was caught by sweeping in lowland jungle, June 6, 1915, Cairns district (A. P. Dodd).

Type.—I. 5121, South Australian Museum. A female on a tag, antennae and forewings on a slide.

NEUROGALESUS RUBRIPES, n. sp.

♀. Black; legs and tegulae deep-red, also apex of scape, pedicel, and funicle joints; apical antennal joint brownish at apex. Vertex smooth, except for large scattered punctures; carinae running from above the eyes down the frons with their latero-cephalic angle acute and prominent, when viewed from above. Scutum without depressions, with a few small scattered punctures; foveae at base of scutellum not reaching half its length, the lateral foveae large. Petiole as in *dissimilis*. Body of abdomen two and a half times as long as greatest width. Forewings more lightly infuscate than in *grandis*, *hackeri*, or *dissimilis*, the marginal vein less stout. Pedicel one-half longer than wide, the first funicle joint somewhat shorter and narrower, one-half longer than wide, the fifth quadrate; club 6-jointed, joints 1-5 wider than long, the first somewhat narrower than others, the sixth nearly twice as long as greatest width. Length, 3·90 mm.

Hab.—Queensland: Yungaburra, 2,500 ft. Described from one female caught by sweeping in jungle, May 10, 1915 (A. P. Dodd).

Type.—I. 5122, South Australian Museum. A female on a tag, antennae and forewings on a slide.

EUHOPLOPRIA, n. g.

♀. Head shaped much as in *Neurogalesus*, Kieffer, viewed from the side trapezoidal, straight from antennal prominence to mouth, which projects backwards slightly; viewed from above, as long as wide, with a carina running from above eyes down and around the frons convexly, the antennae inserted below this on a frontal prominence, which is hidden by the frontal carina; vertex with scattered punctures and a line of punctures along its occipital margin; mandibles edentate, crossed at apex, not large; maxillary palpi 5-jointed. Scutum normal, with a few scattered punctures, the parapsidal furrows deep and complete, the parapsides very feebly depressed; scutellum with two large circular foveae at base, and a longer one on either side; metanotum with a raised tooth at base, its posterior margin feebly concave. Petiole normal, not twice as long as wide; body of abdomen with a short median groove at base, its cephalic margin quite straight, the second segment occupying most of surface, gently convex above and beneath. Forewings ample; venation terminating about middle of wing; marginal vein thickened, the stigmal vein short, the basal rather well defined. Antennae 13-jointed; scape prolonged at apex and covering base of pedicel; club gradual, 5- or 6-jointed.

This genus differs from *Neurogalesus*, Kieffer, in that the antennal prominence, when viewed from above, is not very large, but is hidden, and the cephalic margin of the body of the abdomen is quite straight; also the median groove at base of abdomen is very short, and there is no median impression on the vertex. In *habitus* the species of this genus are very distinct from those of *Neurogalesus*, and are much smaller.

Type.—E. carinatifrons.

Table of species.

A. Abdomen slender, about thrice as long as wide; petiole plainly tricarinate	*carinatifrons*
B. Abdomen not slender, twice or less as long as wide; petiole with at most a complete delicate median carina, the others present only at extreme base.	
(1) Forewings normally rounded at apex; segment 2 much more than twice as long as the following united ...	*lativentris*
(2) Forewings truncate and a little depressed at distal margin; segment 2 of abdomen not or barely twice as long as the following united	*emarginpennis*

EUHOPLOPRIA CARINATIFRONS, n. sp.

♀. Black, the antennae concolorous, the tegulae and legs reddish-yellow, the femora somewhat dusky. Petiole of abdomen one-half longer than wide, tricarinate; body of abdomen long-ellipsoidal, about thrice as long as greatest width, the second segment over twice as long as following united, the remainder with numerous pin-punctures, and a few long setae. Forewings lightly infuscate; broad; the distal margin normally rounded. Pedicel nearly twice as long as wide, the funicle joints a little narrower; first fully twice as long as greatest width, second not one-half longer than wide, the fifth as wide as long; club 6-jointed, not well defined, merging into the funicle, joints 1-5 distinctly wider than long, the sixth nearly twice as long as proceding joint. Length, 2·35 mm.

Hab.—Queensland: Cooktown and Cairns districts; New South Wales: Clarence River. Described from two females caught by sweeping in coastal jungle at former *habitats*, March 6 and October 14, 1914, respectively, and one female sweeping miscellaneous vegetation, chiefly jungle, Clarence River, June 3, 1914 (A. P. Dodd). The southern specimen has the apex of scape and all funicle joints suffused reddish.

Type.—I. 5123, South Australian Museum. A female on a tag, antennae, head, and forewings on a slide.

EUHOPLOPRIA LATIVENTRIS, n. sp.

♀. Similar to *carinatifrons*, but punctures in occipital row smaller; abdomen not slender, broad, broadest at apex of second segment, no more than one-half longer than wide, the segments after the second very short; petiole with a median carina, but no others; second funicle joint two-thirds longer than wide, the fifth a little longer than wide, the sixth quadrate, club only 5-jointed. Length, 2·15 mm.

Hab.—Queensland: Yungaburra, 2,500 ft. Described from one female caught by sweeping in jungle, May 9, 1915 (A. P. Dodd).

Type.—I. 5124, South Australian Museum. A female on a tag, antennae and forewings on a slide.

EUHOPLOPRIA EMARGIPENNIS, n. sp.

♀. Like *lativentris*, but the abdomen not so stout, twice as long as wide, the segments after the second half as long as that segment: petiole with the median carina subobsolete (in both species there are short other carinae at extreme base); punctures in occipital line, scattered; forewings not rounded at apex, almost truncate, faintly depressed in centre; first funicle joint thrice as long as wide, second twice as long as wide, the sixth a little wider than long, and the first joint of the club: the club thus 6-jointed, its second joint (first of *lativentris*) not perceptibly smaller than following (plainly so in *lativentris*). Length, 2·45 mm.

Hab.—Queensland: Yungaburra, 2,500 ft. Described from one female caught by sweeping in jungle, May 9, 1915 (A. P. Dodd).

Type.—I. 5125, South Australian Museum. A female on a tag, antennae and forewings on a slide.

HOPLOPRIELLA, n. g.

♀. Head, viewed from above, wider than long, the vertex with scattered punctures, more rarely rugose-sulcate, occasionally with a median longitudinal depression, the frontal prominence conspicuous; viewed from the side more high than long, the mouth not directed backwards, the mandibles not large; maxillary palpi 5-jointed. Thorax convex dorsad; scutum often with scattered punctures, the parapsidal furrows deep and complete, rarely incomplete, the median lobe often with two depressions cephalad, in one instance depressed caudad, the lateral lobes sometimes depressed; scutellum with two large foveae at base, and one along either side, these latter rarely narrow and obscure, the caudal margin foveate; metanotum with a raised scale, sometimes absent, at base. Petiole not more than thrice as long as wide, carinate, normal. Body of abdomen raised from petiole, without impressions at base, gently convex above and below, rounded caudad, the second segment occupying over one-half of surface. Antennae 13-jointed; scape prolonged at apex and covering base of pedicel; flagellum joints never slender, with a club of from five to seven joints, the last joint small, rarely lengthened. Forewings long and broad, in one instance shortened and narrow; venation terminating about middle of wing; marginal vein sometimes thickened, two to four times as long as wide, the stigmal short, the basal usually more or less distinct; a white longitudinal stripe through middle of wing always present. Size moderate.

The numerous species placed in this genus form a natural segregate. The genus can be distinguished from all other genera of the family, except *Neurogalesus* and *Euhoplopria*, by the distal prolongation of the scape. From the two genera named it differs in the different form of the head, and the non-grooved base of abdomen. It is possible that it is but one of Kieffer's numerous genera, but I cannot reconcile it with any previously described genus. The species are from various parts of Eastern Australia, and there are no doubt many more to be discovered. *Type.—H. bicoloricornis.*

Table of species.

(1)	Vertex more or less rugose-sulcate; median lobe of scutum with two depressions cephalad	(2)
	Vertex at the most with scattered punctures	(4)
(2)	Apical antennal joint small, no longer than preceding and narrower	*bicoloricornis*
	Apical antennal joint long, much longer than preceding	(3)
(3)	Frons below ocelli with numerous fine cross-sulci; second segment of abdomen distinctly more than twice as long as the following united	*sulcaticeps*

Frons below ocelli without cross-sulci; second abdominal segment not more than twice as long as the following united ... *longiventris*

(4) Forewings very narrow; parapsidal furrows abbreviated ... ... *abnormipennis*

Forewings not narrow ... ... (5)

(5) Forewings conspicuously blotched with brown, one blotch in centre against distal margin ... ... *maculosa*

Forewings not conspicuously blotched with brown, at most feebly so, without a blotch in centre against distal margin ... ... (6)

(6) Thorax mostly red; scutum without depressions; parapsidal furrows complete ... ... *rubrinotum*

Thorax wholly black ... ... (7)

(7) Median lobe of scutum with two depressions cephalad, small or elongate, the lateral lobes depressed; parapsidal furrows complete ... ... (8)

Scutum without depressions; parapsidal furrows sometimes abbreviated ... ... (10)

(8) Basal foveae of scutellum widely divergent from base ... ... *tasmanica*

Basal foveae of scutellum not divergent from base ... ... (9)

(9) First funicle joint no longer than pedicel, twice as long as greatest width; cephalic depressions on scutum not elongate; petiole not twice as long as wide ... ... *punctaticeps*

First funicle joint distinctly longer than pedicel, almost thrice as long as greatest width; cephalic depressions on scutum elongate; petiole over twice as long as wide ... ... *tricarinata*

(10) Parapsidal furrows forming deep grooves and complete ... ... *simulans*

Parapsidal furrows incomplete, or if complete only as a fine groove cephalad, forming deeper grooves caudad ... ... (11)

(11) Punctures on head and thorax not small; lateral foveae of scutellum much longer than the basal ones; parapsidal furrows about one-half complete from caudad, deep and distinct, not continued cephalad as fine grooves ... ... *concoloricornis*

Punctures on head and thorax small; lateral foveae of scutellum not longer than basal ones; parapsidal furrows complete, or nearly, as fine grooves cephalad, deep and distinct caudad ... ... (12)

(12) Tegulae concolorous; legs partly dusky; basal foveae of scutellum well separated caudad from lateral pair and not oblique *fuscitegula*

Tegulae yellow; legs wholly yellow; basal foveae of scutellum only separated caudad from lateral pair by a thin line, and somewhat oblique ... ... *parvipunctata*

HOPLOPRIELLA BICOLORICORNIS, n. sp.

♀. Black, shining, the legs and antennae (except the club) bright red, the scape dark at base; tegulae suffused red. Head with numerous scattered moderately large punctures; the vertex with several irregular fine cross-sulci, and a longitudinal median impression against occipital margin. Median lobe of scutum with a long depression on either side of meson cephalad, these shallow, the lateral lobes shallowly depressed; parapsidal furrows deep and complete; with a few punctures. Foveae at base of scutellum large, oval, the lateral ones much longer. Metanotum with a raised scale at base. Petiole over twice as long as wide, with about four carinae dorsad; body of abdomen scarcely longer than thorax, a little over twice as long as wide, the second segment occupying over two-thirds of surface. Forewings long and broad; lightly infuscate, with a darker obscure blotch beneath marginal vein; marginal vein over twice as long as wide; basal vein very faint. Pedicel one-third longer than wide, the funicle joints narrower; first nearly thrice as long as wide; second slightly shorter, the fifth distinctly longer than wide; club 6-jointed, first joint rather small, 2-5 much wider than long, the sixth much smaller. Length, 2·35 mm.

Hab. —Queensland: Yungaburra, 2,500 ft. Described from two females caught by sweeping in jungle, May 10, 1915 (A. P. Dodd).

Type.—I. 5126, South Australian Museum. A female on a tag, antennae and forewings on a slide.

HOPLOPRIELLA MACULOSA, n. sp.

♀. Black, legs and tegulae reddish-yellow, the femora somewhat dusky; antennal scape and club black, the pedicel and funicle deep-red, the apical antennal joint yellowish. Vertex of head with scattered punctures, and a line of punctures round occipital margin, the sides of the head and the frons below ocelli much more densely punctate. Parapsidal furrows deep and complete; median lobe of scutum without depressions, the lateral lobes very feebly depressed; a row of punctures on either side of parapsidal furrows, and a few punctures around outer margin of lateral lobes. Scutellum with scattered punctures, with two deep foveae at base, large and circular, and a longer deep fovea along either side; metanotum with an acute semi-erect medial tooth at base. Petiole twice as long as wide, the dorsum strongly tricarinate; body of abdomen twice as long as greatest width, the second segment occupying barely two-thirds of surface; segments after second with long scattered setae. Forewings long and broad; patterned; a large irregular blotch extending across wing at marginal vein, this split by the longitudinal white stripe, below this stripe with a narrow distal prolongation; a large rectangular blotch midway between marginal vein and wing apex, nearer to cephalic than caudal margin; a triangular blotch against distal margin in centre, its apex proximad; marginal vein about twice as long as wide, the basal obsolete. Pedicel one-half longer than wide, the first funicle joint somewhat narrower, fully twice as long as wide, the fifth distinctly longer than wide; club 6-jointed, joints 1-5 much wider than long. Length, 2·65 mm.

Hab.—New South Wales: Upper Tweed River. Described from one female caught by sweeping in open forest, 1,000 ft., May 17, 1914 (A. P. Dodd).

Type.—I. 5127, South Australian Museum. A female on a tag, head, antennae, and forewings on a slide.

HOPLOPRIELLA LONGIVENTRIS, n. sp.

♀. Black; legs bright red; antennal pedicel and funicle joints deep-red; tegulae dusky-red. Vertex of head with a long median impression running from front ocellus to occipital margin, lateral of this with irregular oblique sulci and thus appearing rugose; immediately below front ocellus there is a small depression, the frons above antennae otherwise glabrous; vertex also with a few scattered punctures. Scutum and scutellum alutaceous, not shining; median lobe of scutum with two long shallow depressions cephalad, these joining and forming a single shorter depression against caudal margin, the lateral lobes depressed, the parapsidal furrows deep and complete; no distinct punctures on scutum and scutellum; foveae at base of scutellum large, the lateral pair longer, the scutellum also with a median carina; raised scale at base of metanotum obscure. Petiole, viewed from the side, somewhat convex dorsad, viewed from above over twice as long as wide, with several dorsal carinae; body of abdomen long-ellipsoidal, thrice as long as greatest width, the segments after the second half as long as that segment. Forewings long and broad; a little infuscate; marginal vein fully thrice as long as wide, the basal rather well marked, also the median distad of its juncture with the basal. Pedicel nearly twice as long as greatest width, the first funicle joint as long and narrower, nearly thrice as long as greatest width, the sixth a little longer than wide; club 5-jointed, joints 1-4 wider than long, the first small; last joint long, twice as long as penultimate. Length, 2·90 mm.

Hab.—Queensland: Yungaburra, 2,500 ft. Described from one female caught by sweeping in jungle, May 10, 1915 (A. P. Dodd).

Type.—I. 5128, South Australian Museum. A female on a tag, antennae and forewing on a slide.

HOPLOPRIELLA ABNORMIPENNIS, n. sp.

♀. Black, the tegulae and legs reddish-yellow, the femora dusky; apical half of scape and next seven joints clear-reddish, the last five joints and base of scape black. Vertex with rather small, scattered punctures, the eyes rather small. Scutum with numerous scattered punctures, without depressions, the parapsidal furrows only present at extreme caudad; scutellum with a few punctures, the basal foveae rather wide apart and somewhat oblique, the lateral pair shorter than basal ones and very obscure: metanotum with a blunt tooth at base. Petiole nearly twice as long as wide, the dorsum strongly tricarinate. Forewings not attaining apex of abdomen: very narrow for the family, at least six times as long as greatest width; infuscate: marginal vein about thrice as long as wide, the basal rather faint. Pedicel one-half longer than wide, the first funicle joint a little narrower, twice as long as wide, the sixth a little wider than long; club 5-jointed, joints 1-4 much wider than long, the last joint scarcely longer than preceding. Length, 3·25 mm.

Hab.—King Island, Bass Straits (A. M. Lea).

Type.—I. 5129, South Australian Museum. A female on a tag, antennae and forewings on a slide.

HOPLOPRIELLA RUBRINOTUM, n. sp.

♀. Black: pronotum, scutum, scutellum, and propleura bright chestnut-red, the median lobe of scutum with a black patch cephalad; tegulae and legs bright reddish-yellow: base of scape and the club black, rest of antennae bright reddish-yellow. Head with rather large scattered punctures, the scutum with a few smaller ones: median lobe without depressions, the lateral lobes feebly depressed, the parapsidal furrows deep and complete: foveae at base of scutellum moderately large, circular, the lateral foveae much longer: metanotum with a raised scale at base. Petiole barely twice as long as wide; body of abdomen not long, oval, the second segment occupying fully two-thirds of surface. Forewings ample: subhyaline: marginal vein about twice as long as wide. Pedicel one-half longer than wide, the first funicle joint narrower, twice as long as wide, 2-6 shortening, the sixth a little wider than long; club 5-jointed, joints 1-4 distinctly wider than long, the last joint no longer than preceding. Length, 2·45 mm.

Hab.—New South Wales: Clarence River. Described from one female caught by sweeping vegetation, chiefly jungle, June 3, 1914 (A. P. Dodd).

Type.—I. 5130, South Australian Museum. A female on a tag, antennae and forewings on a slide.

HOPLOPRIELLA TASMANICA, n. sp.

♀. Black, the tegulae and legs bright reddish-yellow; apical half of scape red, the antennae otherwise black. Head with scattered, rather small punctures. Median lobe of scutum with a shallow depression on either side of meson cephalad, extending for over one-third its length, the lateral lobes with a feeble depression; parapsidal furrows deep and complete, with a row of scattered punctures on either side, the lateral lobes with a few punctures around the outer margin; basal foveae of scutellum long, situated obliquely to each other from base, the lateral pair deep, but no longer; metanotum rugose, with a triangular raised scale at base medially. Forewings long and broad; somewhat infuscate; marginal vein rather long, over thrice as long as width at base, the basal rather well marked. Pedicel one-half longer than wide, the first funicle joint narrower, one-half longer than wide, the fifth a little wider than long, the sixth a little widened; club 5-jointed, joints 1-4 distinctly wider than long, the last joint scarcely longer than preceding. Length, 3·40 mm.

Hab.—Tasmania: Mount Wellington (A. M. Lea).

Type.—I. 5131, South Australian Museum. A female on a tag, forewings and antenna on a slide.

HOPLOPRIELLA PARVIPUNCTATA, n. sp.

♀. Black, the tegulae and legs bright reddish-yellow; antennae wholly black. Head with scattered small punctures, also the scutum; scutum without depressions, the parapsidal furrows deep and distinct caudad, shallow and indistinct for greater part, and apparently not attaining the cephalic margin; foveae at base of scutellum large, situated a little obliquely from each other, and caudad separated from cephalic end of lateral foveae only by a thin line, the lateral foveae shallow and not longer than basal ones; metanotum with a raised medial scale at base. Petiole barely one-half longer than wide, with several carinae dorsad; body of abdomen not long, the second segment occupying over two-thirds of surface. Forewings long and broad; somewhat infuscate; marginal vein nearly thrice as long as width at base, the basal delicate. Pedicel a little longer than wide, the funicle joints distinctly narrower, first one-third longer than wide, the sixth a little wider than long; club 5-jointed, joint 1 distinctly narrower than the others, 1-4 distinctly wider than long, the last joint slightly longer than preceding. Length, 2·45 mm.

Hab.—Queensland: Mount Tambourine (A. M. Lea).

Type.—I. 5132, South Australian Museum. A female on a tag, antennae and forewings on a slide.

HOPLOPRIELLA FUSCITEGULA, n. sp.

♀. Very similar to *parvipunctata*, but the tegulae are dusky, also the femora; the parapsidal furrows do not widen so perceptibly caudad, and are more distinct cephalad; the foveae at base of scutellum are not obliquely situated to each other, are well separated from the lateral foveae, and are shorter, not extending for half the length of scutellum (extending for that distance in *parvipunctata*); club joints 2-4 longer, only a little wider than long, the first scarcely widened and apparently not forming part of club, the last joint a little longer. Length, 2·25 mm.

Hab.—Tasmania: Mount Wellington (A. M. Lea).

Type.—I. 5133, South Australian Museum. A female on a tag, antennae and forewings on a slide.

Possibly an insular form of *parvipunctata*, but the differences are too many to consider it a variety of that species.

HOPLOPRIELLA PUNCTATICEPS, n. sp.

♀. Black, the tegulae and legs wholly reddish-yellow; apex of scape and the seven following joints deep-red. Head with rather large scattered punctures, the scutum with a few small ones on either side of parapsidal furrows, and around outer margin of parapsides; parapsidal furrows deep and complete; parapsides plainly depressed, the median lobe with a small oval depression on either side against cephalic margin; foveae at base of scutellum large, circular, the lateral pair deep and plainly longer; raised scale at base of metanotum not prominent. Petiole twice as long as wide, with three strong carinae dorsad; body of abdomen not long, the second segment occupying over two-thirds of surface. Forewings long and broad, a little infuscate; marginal vein barely twice as long as wide, the basal rather delicate. Pedicel one-third longer than wide, the funicle joints narrower; first almost twice as long as wide, the fifth quadrate, the sixth a little widened; club 5-jointed, joints 1-4 distinctly wider than long, the last joint no longer than preceding. Length, 2·90 mm.

Hab.—New South Wales: Sydney (A. M. Lea).

Type.—I. 5134, South Australian Museum. A female on a tag, antennae and forewings on a slide.

HOPLOPRIELLA CONCOLORICORNIS, n. sp.

♀. Black, the tegulae and legs bright reddish-yellow, the antennae wholly black. Head, scutum, and scutellum with a few scattered punctures; scutum without depressions, the parapsidal furrows one-third complete from caudad, as deep grooves; foveae at base of scutellum circular, the lateral pair much longer; metanotum without a scale at base. Petiole fully twice as long as wide, with several carinae dorsad; body of abdomen long-ellipsoidal, thrice as long as greatest width, the second segment occupying fully three-fourths of surface. Forewings long and broad; a little infuscate; marginal vein barely twice as long as wide, the basal rather delicate. Pedicel one-half longer than wide, the funicle joints scarcely narrower, first twice as long as wide, the fifth a little wider than long, slightly widened: club 6-jointed, joints 1-5 distinctly wider than long, the last joint no longer than preceding. Length, 2·90 mm.

Hab.—Queensland: Cairns district. Described from several females caught by sweeping in coastal jungles.

Type.—I. 5135, South Australian Museum. A female on a tag, forewings and antennae on a slide.

HOPLOPRIELLA SIMULANS, n. sp.

♀. Very similar to *concoloricornis*, but the tegulae are black; the parapsidal furrows are deep and complete; the petiole is barely one-half longer than wide; body of abdomen not long, about twice as long as greatest width, the second segment occupying a little more than two-thirds of surface; marginal vein not one-half longer than width at base; apical antennal joint rather long, distinctly longer than the preceding Length, 2·30 mm.

Hab.—Queensland: Cairns district. Described from one female caught by sweeping in jungle, 1,200 ft., April 3, 1915 (A. P. Dodd).

Type.—I. 5136, South Australian Museum. A female on a tag, antennae and forewings on a slide.

HOPLOPRIELLA TRICARINATA, n. sp.

♀. Black, the tegulae and legs bright reddish-yellow, the femora dusky in centre; apical half of scape, and next seven joints, bright-red. Head with scattered moderate-sized punctures, also the scutum and scutellum; parapsidal furrows deep and complete, the median lobe with a shallow depression on either side of meson cephalad, reaching for half its length, the lateral lobes plainly depressed; foveae at base of scutellum large, oval, the lateral pair much longer; metanotum with a raised triangular scale at base. Petiole over twice as long as wide, with three strong carinae dorsad; body of abdomen somewhat over twice as long as greatest width, the second segment occupying almost all of surface. Forewings long and broad; with an obscure blotch beneath marginal vein and a smaller one a little further distad; marginal vein over twice as long as width at base, the basal rather delicate. Pedicel a little longer than wide, the funicle joints a little narrower, the first thrice as long as greatest width, the fifth a little longer than wide, the sixth a little widened: club 5-jointed the first almost quadrate, 2-4 a little wider than long, the last joint very small. Length, 3·20 mm.

Hab.—Queensland: Cairns district. Described from two females caught by sweeping in jungle, 1,200 ft., September 12, 1913, and April 5, 1915 (A. P. Dodd).

Type.—I. 5137, South Australian Museum. A female on a tag, antennae and forewings on a slide.

HOPLOPRIELLA SULCATICEPS, n. sp.

♀. Black, the tegulae and legs reddish-yellow, the femora and tibiae somewhat dusky; scape and pedicel almost black, the next six joints bright-red, the club black. Vertex of head with a shallow depression between ocelli and occipital margin, with numerous oblique irregular narrow sulci, the frons above the antennae with these sulci transverse: head, scutum, and scutellum with a few rather small punctures: parapsidal furrows deep and complete, the median lobe with a shallow depression on either side of meson cephalad, extending for nearly half its length, the lateral lobes plainly depressed; foveae at base of scutellum large, oval, the lateral pair much longer, the sclerite also with a median carina extending half its length from caudad; metanotum with a raised triangular scale at base. Petiole over twice as long as wide, carinate; body of abdomen over twice as long as wide, the second segment occupying a little over two-thirds of surface. Forewings long and broad: beneath marginal vein with an obscure blotch continued distad somewhat: marginal vein over thrice as long as width at base, the basal vein delicate. Pedicel one-third longer than wide, the funicle joints scarcely narrower, the first rather more than twice as long as greatest width, the sixth a little wider than long; club 5-jointed, joints 1-4 distinctly wider than long, the last joint twice as long as preceding. Length, 3·10 mm.

Hab.—New South Wales: Sydney. Described from one female labelled "Rotting leaves, National Park, A. M. Lea."

Type.—I. 5138, South Australian Museum. A female on a tag, the antennae and forewings on a slide.

PROPENTAPRIA, n. g.

♀. Head normal; dorsal aspect wider than long; smooth; eyes large. Antennae inserted on a frontal prominence;

13-jointed; scape normal: last six joints forming an ill-defined club. Parapsidal furrows deep and distinct: lateral lobes of scutum depressed, the median one smooth; scutellum with five foveae at its base, the outer two large, circular, the inner three elongate, narrow, also there is a large oval fovea on either side, and the caudal margin is foveate; metanotum with a raised scale at base. Petiole nearly thrice as long as wide, carinate: body of abdomen not raised from it, with a short impression at base, long-oval, gradually coming to a point toward apex. Forewings ample: venation terminating about middle of wing; marginal vein about thrice as long as wide; stigmal vein very short, basal and median veins obsolete.

The genus is distinguished by the number of foveae at base of scutellum. *Type.*—The following species.

PROPENTAPRIA MULTIFOVEATA, n. sp.

♀. Black, the legs and tegulae blood-red; antennae black. Forewings somewhat infuscate; long and broad. Head and scutum with a few setigerous pin-punctures. Petiole with four carinae dorsad. Pedicel and funicle joints narrowed at base; pedicel twice as long as greatest width, the first funicle joint as long and slightly narrower; 2-5 shortening, the fifth one-third longer than wide, club not plainly wider than funicle, the first joint longer than wide, the fifth wider than long, last joint twice as long as wide. Length, 3·10 mm.

Hab.—Queensland: Kuranda. Described from one female caught by sweeping in jungle, April 4, 1915 (A. P. Dodd).

Type.—I. 5139, South Australian Museum. A female on a tag, antennae and forewings on a slide.

LEAIOPRIA, n. g.

♀. Head transverse, the vertex and frons gently rounded; eyes moderate, situated rather low down on sides of face; ocelli present; maxillary palpi not long and slender, apparently abnormal, and consisting of not more than two joints: antennal prominence not conspicuous; mandibles very large, perpendicular, widely separated, when closed not meeting, falcate, consisting of two teeth, the outer one long, the inner one short. Thorax a little convex dorsad; parapsidal furrows complete, widely separated: scutellum almost circular, separated from the scutum by a deep groove; metanotum rugose, with a raised median carina. Tegulae large, the wings represented merely by short bristles. Petiole very short, transverse: body of abdomen raised from petiole, without impressions at base: convex above, scarcely so beneath; composed of several segments, the second occupying two-thirds of surface. All femora somewhat thickened, the anterior tibiae thickened toward apex. Antennae 13-jointed, scape somewhat thickened toward apex; flagellum almost filiform, very slightly incrassate distad.

A genus rather differing in appearance from other *Diapriid* genera; the long falcate mandibles, circular scutellum, and short petiole suggest its alliance with the *Proctotrypidae*, but it would be hardly feasible to place it in that family. Distinguished by the abnormal palpi and long falcate mandibles. Named after Mr. A. M. Lea, the well-known Australian coleopterist, whose collecting has added many interesting forms to the *Micro-Hymenoptera* of Australia. *Type.*—The following species.

LEAIOPRIA TERMITARII, n. sp.

♀. Red or chestnut-brown, the legs and antennae a little paler; head (except face around antennae), anterior half of median lobe of scutum, metathorax, and basal two-thirds of abdomen, black. Occiput and face around antennal insertion with transverse scaly reticulation; face with a few scattered small punctures. Scape as long as next three joints combined; pedicel twice as long as greatest width, the first funicle joint narrower, twice as long as greatest width; second shorter, a third longer than wide, the fifth quadrate; 6-11 a little wider, 6-10 subequal, somewhat longer than wide. Length, 2·45 mm.

Hab.—South Australia: Mount Lofty. Associated with *termites.* (A. M. Lea.)

Type.—I. 5140, South Australian Museum. Five females on a tag, two heads and antennae on a slide.

POLYDIAPRIA, n. g.

♀. Head normal; much wider than long (dorsal aspect), with scattered long setae; eyes large; antennal prominence inconspicuous. Thorax with scattered setae; scutum with deep complete parapsidal furrows; scutellum distinctly wider than long, with five foveae at base, all circular, lateral foveae absent, the caudal margin foveate; metanotum short, with a small raised tooth at base. Petiole a little longer than wide, with numerous fine carinae; body of abdomen oval, broadly rounded behind, not raised from the petiole, with several fine carinae at base. Forewings ample; venation terminating a little beyond middle of wing, the submarginal vein distant from the costa, the marginal three times as long as wide, the stigmal distinct, with a distinct knob, somewhat shorter than the marginal, the basal very distinct. Antennae 11-jointed, with an abrupt 3 jointed club; the scape normal, the funicle joints rather short.

Distinguished by the 11-jointed antennae and the five foveae at base of scutellum; related to *Neopria*, Dodd. *Type.* —The following species.

POLYDIAPRIA ATRICEPS, n. sp.

♀. Bright-reddish or chestnut-brown, the head black; legs golden-yellow; scape red, the pedicel and funicle joints suffused-red, the club black. Forewings long and broad; a little infuscate. Pedicel one-half longer than wide, the first funicle joint narrower, one-half longer than wide; 2-6 shortening, the sixth very transverse, somewhat widened; club joints very much wider than funicle, 1 and 2 wider than long. Length, 1·75 mm.

Hab.—Queensland: Cairns district. Described from three females caught by sweeping in jungle, April, 1915 (A. P. Dodd). Later a female was captured in jungle, Yungaburra, 2,500 ft., May 10, 1915.

Type.—I. 5141, South Australian Museum. A female on a tag, antennae and forewings on a slide.

This species bears a very decided resemblance to *Neopria trifoveata*, Dodd.

SOLENOPSIELLA, n. g.

♀. Differs from *Solenopsia*, Wasmann, in having the head lengthened, from dorsal aspect somewhat longer than wide; the petiole is without a hump or excision as in the *Formicaridae*; and the antennal club is 3-jointed. *Type.*—The following species.

SOLENOPSIELLA DISTINCTA, n. sp.

♀. Head and abdomen black, the thorax bright-reddish or chestnut-brown; legs and antennae (except the club, which is black) golden-yellow. Head, viewed from above, somewhat longer than wide, with scattered long setae; eyes rather small, smaller than their distance from the occipital margin; ocelli small, close together; antennal prominence very distinct. Thorax slightly narrower than the head, its dorsal surface almost flat; smooth, with a few long scattered setae; scutum as long as greatest width; scutellum distinctly wider than long, with one large fovea at base, without a median carina; metanotum of moderate length, its posterior margin concave, the latero-caudal angles acute. Body of abdomen oval, a little longer and distinctly wider than the thorax; gently convex above and below; broadly rounded behind; somewhat raised from the petiole; second segment occupying almost all of surface. Petiole stout, one-half longer than wide; covered, except caudad, with dense, whitish pubescence. Wings entirely wanting. Antennae 11-jointed; scape long and slender;

pedicel one-third longer than wide; first funicle joint narrower than pedicel, one-third longer than wide; 2-6 wider than long, the sixth very transverse; club very abrupt, 3-jointed, the joints wider than long, the first longer than the second. Length, 1·70 mm.

Hab.—Queensland: Mount Tambourine. Described from one female labelled "Rotting leaves, A. M. Lea."

Type.—I. 5142, South Australian Museum. A female on a tag, the antennae on a slide.

CARDIOPRIA, n. g.

♀. Head, viewed from above, distinctly wider than long; smooth; eyes moderately large; mandibles small; antennal prominence distinct. Thorax convex above; scutum and scutellum smooth, shining; parapsidal furrows wanting: scutellum with a very large circular fovea at base, without a median carina; metanotum with a raised median tooth at base. Petiole stout, one-half longer than wide. Body of abdomen raised from the petiole; the venter produced cephalad at base, as in the *Belytid* genera, *Acanosema*, Kieffer, and *Cardiopsilus*, Kieffer; viewed from above, somewhat longer than the head, thorax, and petiole united, produced into a long, narrow point, the second segment thus occupying scarcely one-half of surface. Forewings ample; venation as in *Diapria*, the venation terminating at about one-third wing length in a triangular marginal vein. Antennae 12-jointed, without a well-defined club, the last four or five joints slightly thickened. *Type.*—The following species.

CARDIOPRIA VENTRALIS, n. sp.

♀. Shining-black; legs blood-red, the coxae dusky-black, also the femora and apical third of tibiae; antennal scape and apical five joints black, others dark-red. Head and thorax with a few scattered long setae; abdomen smooth, shining. Forewings long and broad; subhyaline, with an elongate fuscous blotch beneath marginal vein and continued distad. Scape long and slender; pedicel twice as long as wide, the first funicle joint slightly narrower and about as long, the remaining joints scarcely decreasing in length; club joints distinctly longer than wide. Length, 3·30 mm.

Hab.—Victoria: Ballarat district.

Type.—In the National Museum, Melbourne. A female on a tag, antennae and forewings on a slide.

NEOPRIA, n. g.

♀. Head, viewed from above, distinctly wider than long; smooth; except for long setae scattered over its surface;

mandibles small; eyes not very large. Antennae 12-jointed, the club abrupt, 3-jointed. Thorax rather stout, convex dorsad; scutum with distinct parapsidal furrows; scutellum with three large foveae at base, the lateral foveae absent, the caudal margin foveate; metanotum with a large raised longitudinal scale at base. Petiole stout, about one-half longer than wide, striate; second segment with a few short striae at base, also a short median impression; body of abdomen as long as thorax and petiole united, stout, ovoid, gently convex above and beneath, the second segment occupying almost all surface. Forewings well developed, attaining apex of abdomen, broad; costal, submarginal, marginal, stigmal, and basal veins well developed; venation terminating at one-half wing length; marginal vein about four times as long as wide, the stigmal short.

Distinguished by the three foveae at base of scutellum. In Kieffer's table of genera (1911) running to *Idiotypa*, Foerster, and *Neuropria*, Kieffer.

Type.—Trifoveata.

Table of species.

A. Median fovea at base of scutellum twice as long as the one on either side	*sordida*
B. Foveae at base of scutellum nearly subequal.	
(1) Body wholly reddish	*trifoveata*
(2) Head and body of abdomen black ...	*erythrothorax*

NEOPRIA TRIFOVEATA, n. sp.

♀. Bright-reddish or chestnut-brown; eyes, ocelli, and apical three antennal joints, black; legs golden-yellow. Wings subhyaline. Scape long and slender; pedicel one-half longer than wide; funicle joints narrower than pedicel, first one-half longer than wide, 2-7 wider than long, the seventh widened; club stout, the first and second joints wider than long. Length, 2·10-1·75 mm.

Hab.—Queensland: Cairns district. Described from several specimens; a not uncommon species in and about jungle.

Type.—I. 5143, South Australian Museum. A female on a tag, head and forewings on a slide.

NEOPRIA ERYTHROTHORAX, n. sp.

♀. Head and abdomen black, the thorax bright-red, also the petiole; legs and antennae red, the antennal club black. Like *trifoveata*, but forewings somewhat darkly infuscate, the marginal vein shorter, less than thrice as long as wide; petiole no longer than wide, the abdomen with more striae at base; first funicle joint slightly longer than wide. Length, 1·60 mm.

Hab.—Queensland: Yungaburra, 2,500 ft. Described from one female caught by sweeping in jungle, May 10, 1915 (A. P. Dodd).

Type.—I. 5144, South Australian Museum. A female on a tag, antennae and forewings on a slide.

NEOPRIA SORDIDA, n. sp.

♀. Dull-black, the thorax dull chestnut-brown, also abdominal petiole, the scutum and scutellum dull-black; legs wholly golden-yellow: antennae wholly fuscous. Similar to *trifoveata*, but pedicel shorter, only a little longer than greatest width; marginal vein somewhat shorter: forewings somewhat fuscous, more especially around venation; thorax rather stouter; foveae on either side of median one at base of scutellum, not half as large as median one (nearly as large in *trifoveata*). Length, 1·40 mm.

Hab.—Queensland: Cairns district. Described from two females caught by sweeping in jungle, 1,200 ft., April 6, 1915 (A. P. Dodd).

Type.—I. 5145, South Australian Museum. A female on a tag, antennae and forewings on a slide.

ACIDOPRIA, Kieffer.

This genus was erected by Kieffer in 1913, and contains four species from the Philippines. The species described below comes nearest to *monachanta*, in that the frons is armed with one thorn only.

ACIDOPRIA UNIDENTATA, n. sp.

♀. Black; thorax very dark-red; legs bright orange-yellow, also the antennae, the club black. Head, viewed from above, wider than long; frons with a single small spine or thorn between the median ocellus and the antennae; antennal prominence distinct. Scutum smooth, shining; without parapsidal furrows, but with shallow depressions in their stead; scutellum with a single large shallow fovea at base; metanotum with a raised triangular tooth or scale at base, its caudo-lateral angles acute. Petiole twice as long as wide, with three obtuse carinae dorsad, the body of the abdomen distinctly raised from it, ellipsoidal, no longer than the thorax, rounded behind. Forewings ample: very broad: faintly infuscate; venation terminating slightly beyond basal third: marginal vein triangular, no longer than its greatest width: basal vein faintly indicated. Antennae 12-jointed; scape squarely cut off at apex, with a small projection at either lateral corner; pedicel two-thirds longer than wide, the first funicle joint narrower, one-half longer than wide: 2-7 shortening, the seventh much wider than long; club abrupt, 3-jointed, joints 1 and 2 not much wider than long. Length, 1·95 mm.

Hab.—New South Wales: Mittagong; Queensland: Cairns district. Described from one female labelled "Mittagong, N.S.W., A. M. Lea," and one female caught by sweeping in coastal jungle, Cairns district, February 20, 1914 (A. P. Dodd).

Type.—I. 5146, South Australian Museum. A female on a tag, antennae and forewings on a slide.

LOXOTROPA, Foerster.

Another large genus, containing over sixty species from throughout the world. The Australian species are probably numerous.

Table of species.

(1)	Apterous; head and thorax bright ochreous, the abdomen black	*grandiceps*
	Wings fully developed	(2)
(2)	Abdomen slender, gradually narrowing and pointed at apex	*graciliventris*
	Abdomen broadly rounded caudad	(3)
(3)	Petiole of abdomen distinctly pubescent ...	(4)
	Petiole without distinct pubescence	(5)
(4)	Body wholly black; petiole a little longer than wide	*quadriceps*
	Thorax and petiole chestnut-red; petiole twice as long as wide	*pubescens*
(5)	Petiole over twice as long as wide, its dorsum somewhat convex	*bicolor*
	Petiole a third longer than wide, its dorsum quite straight	*fuscinotum*

LOXOTROPA GRANDICEPS, n. sp.

♀. Bright-ochreous; abdomen and antennal club black; rest of antennae and the legs golden-yellow. Head, viewed from above, somewhat longer than wide, the eyes much smaller than their distance from the occipital margin, the ocelli small and situated far cephalad. Thorax slender, a little narrower than the head; pronotum distinctly visible on the sides; scutum not convex; scutellum with one fovea at base; metanotum without an erect scale at base. Petiole about as wide as the metanotum, a little longer than wide, somewhat pubescent; body of abdomen without impressions at base, distinctly wider than the thorax, not long, the second segment occupying almost all of surface. Antennae 12-jointed; pedicel two-thirds longer than wide, the funicle joints plainly narrower, the first a little longer than wide, the rest wider than long; club abrupt, 3-jointed, the first a little longer than second, both somewhat wider than long. Apterous. Length, 1·35 mm.

Hab.—New South Wales: Ourimbah. One female captured in moss by A. M. Lea.

Type.—I. 5147, South Australian Museum. A female on a tag, antennae on a slide.

LOXOTROPA QUADRICEPS, n. sp.

♀. Black, the tegulae and legs bright golden-yellow, the coxae a little dusky; scape dusky-yellow, the pedicel nearly black; rest of antennae clear golden-yellow, the club black. Head, viewed from above, as long as wide: eyes rather shorter than their distance from the occipital margin. Scutum not convex; scutellum with one large shallow fovea at base; metanotum without a raised scale at base. Petiole densely pubescent, a little longer than wide; body of abdomen not long, broadly rounded caudad, the second segment occupying three-fourths of surface. Forewings moderately long and broad; a little infuscate; marginal cilia not long; venation terminating in a triangular marginal vein somewhat beyond basal third of wing; basal vein delicate but distinct. Pedicel twice as long as wide, the funicle joints distinctly narrower, the first twice as long as wide, second scarcely longer than wide, the seventh transverse; club abruptly 3-jointed, first joint as long as wide, a little longer than second. Length, 1·75 mm.

Hab.—New South Wales: Tweed River. Described from one female caught by sweeping in open forest, 1,000 ft., May 17, 1914 (A. P. Dodd).

Type.—I. 5148, South Australian Museum. A female on a tag, antennae and forewings on a slide.

LOXOTROPA GRACILIVENTRIS, n. sp.

♀. Black, thorax deep chestnut-red, also the petiole; abdomen suffused with red; legs golden-yellow; antennae clear reddish-yellow, the club black. Head, viewed from above, slightly wider than long. Scutum somewhat convex; scutellum with a large deep fovea at base; metanotum with a plain median carina. Petiole one-half longer than wide, pubescent; body of abdomen long-pointed-ovate, as long as rest of body, slender, the second segment occupying not quite two-thirds of surface. Forewings rather broad, moderately long; marginal cilia not very short; venation terminating at one-third wing-length. Antennae as in preceding, but funicle joints after the first longer, the second one-half longer than wide, the sixth as long as wide. Length, 1·80 mm.

Hab.—Queensland: Yungaburra, 2,500 ft. Described from one female caught by sweeping in jungle, May 10, 1915 (A. P. Dodd).

Type.—I. 5149, South Australian Museum. A female on a tag, antennae and forewings on a slide.

LOXOTROPA PUBESCENS, n. sp.

♀. Head and abdomen black, the thorax and petiole chestnut-red; legs and antennae golden-yellow. Head subquadrate, almost as long as wide (dorsal aspect); scutellum with a large shallow fovea at base; metanotum with a raised acute scale at base, its latero-caudal angles acute. Petiole pubescent, fully twice as long as wide; body of abdomen rounded caudad, the second segment occupying almost all of surface. Forewings moderately long and broad; a little darkly infuscate; venation terminating somewhat beyond basal third of wing; marginal vein triangular, the basal well marked. Pedicel nearly twice as long as wide, the funicle joints narrower, the first twice as long as wide, the second a little longer than wide, the seventh very transverse; first club joint as long as wide, distinctly longer than the second. Length, 1·45 mm.

Hab.—Queensland: Cairns district. Described from one female caught by sweeping in lowland jungle, June 6, 1915 (A. P. Dodd).

Type.—I. 5150, South Australian Museum. A female on a tag, antennae and forewings on a slide.

LOXOTROPA FUSCINOTUM, n. sp.

♀. Black, the thorax dull red-brown, the scutum and scutellum dusky; legs golden-yellow, the antennae bright-reddish, the pedicel a little dusky, the club black. Head, viewed from above, a little wider than long; scutellum with one large fovea at base; metanotum without a raised scale at base; its latero-caudal angles acute. Petiole a little longer than wide, not pubescent; body of abdomen broadly rounded caudad, the second segment occupying three-fourths of surface. Forewings moderately long and broad: almost hyaline; venation terminating at basal third of wing; basal vein delicate but distinct. Pedicel fully twice as long as wide, the funicle joints somewhat narrower, the first twice as long as wide, the second slightly longer than wide, the seventh transverse; first club joint almost as long as wide, a little longer than second. Length, 1·40 mm.

Hab.—Queensland: Cairns district. Described from two females caught by sweeping in jungle, 1,200 ft., April 3, 1915 (A. P. Dodd).

Type.—I. 5151, South Australian Museum. A female on a tag, antennae and forewings on a slide.

LOXOTROPA BICOLOR, n. sp.

♀. Head and abdomen black; thorax deep chestnut-red, the legs and funicle joints of antennae brighter reddish, the pedicel nearly black, the club black. Head distinctly wider than long (dorsal aspect); scutellum with one large, deep fovea at base; metanotum with a raised scale at base. Petiole over twice as long as wide, carinate; non-pubescent, when viewed from the side somewhat convex dorsad; body of abdomen not long, broadly rounded caudad, the second segment occupying almost all of surface. All femora distinctly swollen. Pedicel one-half longer than wide, the funicle joints somewhat narrower, the first twice as long as wide, the second a third longer than wide, the seventh very transverse; first club joint as long as wide, a little longer than second. Length, 2·45 mm.

Hab.—Queensland: Cairns district. Described from one female caught by sweeping in jungle, 1,200 ft., April 5, 1915 (A. P. Dodd).

Type.—I. 5152, South Australian Museum. A female on a tag, antennae and forewings on a slide.

TRICHOPRIA, Ashmead.

Under this heading Kieffer has placed 100 species, so that the genus is a large one. Only five Australian species have been found.

Table of species.

A. Colour of body wholly black; legs more or less dusky, the antennae mostly so.
    (1) Petiole of abdomen one-third longer than wide; antennae without a club, the penultimate joint somewhat wider than preceding ... ... *atricorpus*
    (2) Petiole of abdomen about twice as long as wide; antennae with an ill-defined club of 4 or 5 joints, the penultimate joint no wider than preceding ... ... *nigricorpus*
B. Colour of body mostly chestnut; legs wholly clear yellowish, the antennae mostly so.
    (1) Scutellum with two foveae at base ... *affinis*
    (2) Scutellum with one fovea at base.
        Apical antennal joint a little longer than preceding ... ... *acuminata*
        Apical antennal joint twice as long as preceding ... ... *longiclava*

TRICHOPRIA NIGRICORPUS, n. sp.

♀. Black; coxae golden-yellow, also the tarsi; the femora and tibiae dusky; antennal scape yellow, dusky at apex, the funicle joints suffused dusky, the club black. Head transverse-quadrate (dorsal aspect); eyes rather small; ocelli small. Thorax dorsad convex; scutum and scutellum smooth, shining; parapsidal furrows wanting; scutellum with one large fovea at base; metanotum with a raised triangular scale medially at base. Petiole striate, barely twice as long as wide, with scattered pubescence; body of abdomen raised from petiole, without impressions at base; gently convex dorsad and ventrad; conic-ovate, pointed at apex; second segment occupying three-fourths of surface. Forewings attaining apex of abdomen; broad; sub-hyaline; marginal cilia rather long; venation terminating at basal third in a triangular marginal vein; basal vein not indicated. Antennae 12-jointed; scape slender: pedicel nearly twice as long as wide; funicle joints narrower than pedicel, the first almost thrice as long as wide, 2-5 subequal, each a little shorter than first; club gradual, 5-jointed, first joint narrower than others, somewhat longer than wide, 2-4 slightly wider than long: flagellum with short hairs. Length, 1·80-2·20 mm.

Hab.—Queensland: Bribie Island; New South Wales: Tweed River. Described from one female received from Queensland Museum, and labelled, "Bribie Island, Moreton Bay, November 3, 1913, H. Hacker"; and one female taken on foliage of jungle plants, Tweed River, May 13, 1914 (A. P. Dodd). The Queensland specimen is the larger.

Type.—I. 5153, South Australian Museum. A female on a tag, antennae and forewings on a slide.

TRICHOPRIA ATRICORPUS, n. sp.

♀. Black, the antennae concolorous; legs golden-yellow, the hind coxae, all femora, and apical third of hind tibiae dusky. Very similar to *nigricorpus* in structure; metanotum with an obscure raised scale at base; petiole one-third longer than wide; marginal vein no longer than greatest width. Pedicel one-half longer than greatest width, the first funicle joint only slightly narrower, twice as long as greatest width, 2-4 subequal, each little shorter than first, next six joints slightly gradually widening, not forming a distinct club, the joints more or less oval, all longer than wide, the penultimate somewhat larger than preceding. Length, 1·60 mm.

Hab.—Queensland: Cairns district. Described from two females caught by sweeping in jungle, April 3, 1915 (A. P. Dodd).

Type.—I. 5154, South Australian Museum. A female on a tag, antennae and forewings on a slide.

TRICHOPRIA ACUMINATA, n. sp.

♀. Chestnut-red, the abdomen suffused with black; legs golden-yellow, antennae red, the penultimate joint fuscous, the apical joint black. Head globular, somewhat wider than long (dorsal aspect); eyes not large, situated low down on the sides of the head. Thorax dorsad convex; scutellum somewhat convex, but apparently without a median carina, with one large fovea at base; metanotum with a raised triangular scale at base, its caudo-lateral angles acute. Petiole twice as long as wide, covered with long whitish pubescence; body of abdomen conic-ovate, without impressions at base, the second segment occupying three-fourths of surface. Forewings reaching a little beyond apex of abdomen; broad: practically hyaline; marginal cilia moderately long; venation terminating in a triangular marginal vein at basal third of wing. Antennae without a distinct club, but the apical joints somewhat thickened; scape long and slender; basal joints of flagellum somewhat narrowed at base; pedicel one-third longer than wide, the first funicle joint as wide and somewhat longer, fully twice as long as wide; joints 2-5 slightly increasing in length, 6-9 a little shortening, the ninth joint subquadrate, a little longer than wide, the apical joint a little longer. Length, 2·50 mm.

Hab.—Queensland: Cairns district. Several females taken in coastal jungles.

Type.—I. 5155, South Australian Museum. A female on a tag, antennae and forewings on a slide.

TRICHOPRIA LONGICLAVA, n. sp.

♀. Like *acuminata*, but funicle joints 1-3 about subequal, a little longer than 4 and 5; apical joint long, twice as long as preceding; apical abdominal segments gradually narrowing, the second segment occupying only two-thirds of surface, the abdomen beyond that segment distinctly longer than width across apex of that segment (in *acuminata* apical abdomen segments abruptly narrowing, the abdomen beyond second segment distinctly wider across apex of that segment than long). Length, 2·55 mm.

Hab.—Queensland: Cairns district. A very common species in jungles.

Type.—I. 5156, South Australian Museum. Two females on a tag, antennae on a slide with type appendages of *Trichopria affinis*.

TRICHOPRIA AFFINIS, n. sp.

♀. Like *acuminata*, but scutellum with two foveae at base, separated by a carina; forewings longer, attaining well beyond apex of abdomen, the marginal cilia shorter; pedicel stout, only slightly longer than wide, the first funicle joint almost twice as long, thrice as long as greatest width, 2-9 gradually shortening, the seventh only a little longer than wide, the eighth dusky, 8 and 9 a little wider than long, the last joint not much longer than preceding. Length, 2·45 mm.

Hab.—Queensland: Cairns district. Described from two females caught by sweeping in jungle, 1,200 ft., September 13, 1913 (A. P. Dodd).

Type.—I. 5157, South Australian Museum. A female on a tag, antennae and forewings on a slide with type antennae of *Trichopria longiclava*.

ASHMEADOPRIA, Kieffer.

This genus does not seem to be distinct from *Diapria*, Latreille. Kieffer's main determining character of *Diapria* is "bord anterieur du grand tergite découpé en angle et relevé." What this means exactly I cannot ascertain. Is it that the anterior margin is itself "découpé en angle et relevé," or that the base of the abdomen in relation to the petiole is such? The character appears trivial, but at present I must accept Kieffer's genus. On the other hand, *Diapria* and *Ashmeadopria* run very close to *Trichopria*, Ashmead, and it is probable that the two forms of the scutellum are intergraduate. *Ashmeadopria* contains nearly sixty species from throughout the world.

Table of species.

A. Antennae without a distinct club; petiole without distinct pubescence	*laeviventris*
B. Antennae with an abrupt 3- or 4-jointed club; petiole with distinct pubescence.	
(1) Antennal club 4-jointed	*acuta*
(2) Antennal club 3-jointed.	
(*a*) Scutellum depressed at base, without a well-defined fovea at base; first club joint distinctly longer than wide	*pulchrithorax*
(*b*) Scutellum with a distinct well-defined fovea at base; first club joint no longer than wide . .	*rubrithorax*

ASHMEADOPRIA RUBRITHORAX, n. sp.

♀. Head and abdomen black; thorax and petiole bright chestnut-red, the legs and antennae golden-yellow, the club black. Head globular, normal; eyes not large. Thorax a little convex dorsad; scutum smooth; scutellum with one large fovea at base, with a delicate median carina for caudal half; metanotum with a blunt raised scale at base. Petiole nearly twice as long as wide, densely pubescent; body of abdomen slender, pointed conic-ovate but not produced, without impressions at base, the second segment occupying fully three-fourths of surface. Scape rather long and slender; pedicel and funicle joints a little narrowed at base; pedicel two-thirds longer than wide, the funicle joints slightly narrower, the first two-thirds longer than wide, the seventh slightly longer than wide; club abrupt, 3-jointed, the first a little narrower than second, both as long as wide. Forewings long, broad, a little stained yellowish; marginal cilia moderately long; venation terminating in a triangular marginal vein at basal third of wing. Length, 1·60 mm.

Hab.—Queensland: Cairns district. Described from several females; a common species in jungle country.

Type.—I. 5158, South Australian Museum. A female on a tag, antennae and forewings on a slide.

ASHMEADOPRIA PULCHRITHORAX, n. sp.

♀. Very similar to *rubrithorax*, but rather more slender; scutellum without a well-defined fovea at base, but distinctly depressed, the median carina very distinct: petiole thrice as long as wide; forewings somewhat longer, the marginal cilia longer; pedicel twice as long as greatest width, the funicle joints almost subequal, twice as long as wide, the first club joint one-half longer than wide, the second a little longer than wide. Length, 1·75 mm.

Hab.—Queensland: Cairns district. Described from several specimens; a common species in jungles.

Type.—I. 5159, South Australian Museum. A female on a tag, forewings and antennae on a slide

ASHMEADOPRIA ACUTA, n. sp.

♀. Colorationally like the two preceding species. Scutellum with one large fovea at base, the median carina delicate, but distinct. Petiole barely twice as long as wide; body of abdomen pointed conic ovate, the second segment occupying a little less than two-thirds of surface. Forewings reaching well beyond apex of abdomen; broad; subhyaline; marginal cilia rather long. Pedicel two-thirds longer than wide; funicle joints a little narrower, the first two-thirds longer than wide, the sixth a little longer than wide; club 4-jointed, the joints a little longer than wide, the first distinctly narrower than second, which is a little narrower than third. Length, 1·55 mm.

Hab.—Queensland: Cairns district. Described from two females caught by sweeping in jungle, 1,000 ft., April 4, 1915 (A. P. Dodd).

Type.—I. 5160, South Australian Museum. A female on a tag, antennae and forewings on a slide.

ASHMEADOPRIA LAEVIVENTRIS, n. sp.

♀. Abdomen pale dusky-brown; colour otherwise as in other three species. Forewings rather narrower than in other three species; the marginal cilia long. Antennae without a distinct club, the apical three or four joints somewhat widened; funicle joints scarcely narrower than pedicel; pedicel two-thirds longer than wide; first funicle joint two-thirds longer than wide, the penultimate two joints as wide as long, the penultimate distinctly larger than preceding. Scutellum with a shallow depression at base, the median carina not very distinct. Petiole barely twice as long as wide, without distinct pubescence; body of abdomen pointed conic-ovate, the second segment occupying a little less than two-thirds of surface. Length, 1·65 mm.

Hab.—Queensland: Cairns district. Described from one female caught by sweeping in jungle, 1,200 ft., April 3, 1915 (A. P. Dodd).

Type.—I. 5161, South Australian Museum. A female on a tag, antennae and forewings on a slide.

GALESUS, Curtis.

A wide-world genus containing about eighty species.

GALESUS ATRICOXA, n. sp.

♀. Black, the coxae concolorous; rest of legs golden-yellow; antennae wholly black. Head, viewed from above, distinctly longer than wide; smooth, except for scattered punctures, but rugose anteriorly; anterior margin truncate, carinate; also a carina continued from lateral angles of anterior carina for nearly one-half length of head; the eyes moderately large and situated below this latter carina; ocelli situated far cephalad; below the eye a deep sulcus runs from posterior margin right round, and separates the dorsal anterior carina from the cornuted antennal protuberance; mandibles large, conspicuous, dentate, situated at extreme caudad of head, almost perpendicular. Antennae 12-jointed; the scape greatly excised at half-length of inner margin, its apex covering base of pedicel, which is somewhat longer than wide; funicle joints slightly shortening, the first one-third longer than wide, the fifth slightly so; club 5-jointed, joints 1-4 subequal, somewhat wider than long, the fifth nearly twice as long as wide. Forewings attaining apex of abdomen, broad; subhyaline; the apex with a median slit continued toward base of wing, so that in normal position the wing is folded double; without veins, except for an indistinct submarginal. Thorax dorsad slightly convex; pronotum slightly visible from above, rather densely punctate; scutum smooth except for a few small scattered punctures, the parapsidal furrows deep and complete, not distinctly enlarging caudad; scutellum with two large foveae at base, and one on either side, the basal foveae somewhat divergent. Petiole nearly twice as long as wide, slightly swollen on the sides, its dorsum tricarinate; body of abdomen about as long as head and thorax combined, rather slender, gently convex above and beneath; no segments visible from above but the second, with a median groove from base to half its length, and small setigerous punctures scattered over its surface. Length, 2·70 mm.

Hab.—New South Wales: Upper Tweed River. Described from one female caught by sweeping jungle vegetation, 1,000 ft., May 17, 1915 (A. P. Dodd).

Type.—I. 5162, South Australian Museum. A female on a tag, antennae and forewings on a slide.

GALESUS ASSIMILIS, n. sp.

♀. Like *atricoxa*, but fourth funicle joint as wide as long, the fifth a little wider than long; abdomen smooth with a few small scattered setigerous punctures near apex, the median groove not continued beyond one-third of length; abdomen not so slender, the petiole only a little longer than wide. Length, 2·65 mm.

Hab.—Queensland: Cairns district. Described from one female caught by sweeping in lowland jungle, September 20, 1914 (A. P. Dodd).

Type.—I. 5163, South Australian Museum. A female on a tag, antennae and forewings on a slide.

PHAENOPRIA, Ashmead.

About thirty species have been described, the majority from America. So far one Australian species has been captured, and is described below.

PHAENOPRIA SEMICASTANEA, n. sp.

♀. Black; thorax and petiole chestnut-red; the scutum and scutellum darker; legs golden-yellow; antennae red, the club black. Head subglobular, much wider than long (dorsal aspect). Scutum and scutellum smooth, shining, the scutellum without a median carina or basal fovea; metanotum with a raised median carina. Petiole densely pubescent, not twice as long as wide; body of abdomen without an impression at base, oval, pointed at apex, the second segment occupying over two-thirds surface. Forewings reaching well beyond apex of abdomen; moderately broad; marginal cilia long, somewhat darkly infuscate; venation terminating about basal third of wing. Pedicel two-thirds longer than greatest width, the first funicle joint narrower, not twice as long as greatest width; 2-7 shortening, the seventh wider than long; club abrupt, 3-jointed, joints 1-2 wider than long. Length, 1·35 mm.

Hab.—Queensland: Cairns district. Described from one female caught by sweeping in jungle, 1,200 ft., April 4, 1915 (A. P. Dodd).

Type.—I. 5164, South Australian Museum. A female on a tag, antennae and forewings on a slide.

TETRAMOPRIA, Wasmann.

A European genus, containing four myrmecophilous species. Two species are herewith included in the genus, but they do not agree very well with the generic characters as given by Kieffer, since the petiole is longer and the scutellum is without a large fovea at base.

TETRAMOPRIA LONGICILIATA, n. sp.

♀. Black, the thorax chestnut-brown, its sides darker; legs golden-yellow, also the antennae, the apical three or four joints fuscous. Head, viewed from above, pentagonal, the antennae inserted on the vertex against the cephalic margin, the ocelli situated in the centre; viewed from the side the vertex is regularly convex from occiput to antennal insertion, the eyes situated below an imaginary line drawn from antennal insertion to occiput. Thorax dorsad convex; parapsidal furrows wanting; scutellum somewhat depressed at base, but without a basal fovea, without a median carina; metanotum tricarinate, its latero-caudal angles acute. Head and scutum with a few long setae. Petiole slender, over thrice as long as wide, densely pubescent; body of abdomen without impressions at base, pointed conic-ovate, the second segment occupying a little more than one-half of surface. Forewings extending well beyond apex of abdomen, rather slender; marginal cilia long, the longest two-thirds as long as greatest wing-width; discal cilia in about twelve rows; subhyaline; venation terminating in a triangular marginal vein somewhat beyond basal third of wing; no basal vein. Antennae 12-jointed, long and slender; joints 1-10 slender at base, thickened at apex; scape very long, slender, with scattered long setae, as also next five or six joints; pedicel over twice as long as greatest width; first funicle joint a little longer and narrower than pedicel; 2-4 subequal, each a little longer than first; the remainder slightly shortening and widening, the ninth one-third longer than wide. Length, 1·80 mm.

Hab.—Queensland: Mount Tambourine. Three females, labelled "Rotting leaves, A. M. Lea."

Type.—I. 5165, South Australian Museum. Three females on a card, head, antennae, and forewings on a slide.

TETRAMOPRIA PULCHRA, n. sp.

♀. Head and abdomen black; thorax and petiole rich chestnut-red; legs and antennae golden-yellow, the antennal club fuscous. Structure of body much as in *longiciliata*, but the thorax is somewhat flattened, scarcely convex; scutellum on either side at base with a minute fovea, widely separated; petiole not twice as long as wide; second segment occupying over two-thirds of body of abdomen. Forewings not especially slender; marginal cilia not long, the discal cilia dense. Scape normal, also the pedicel and funicle joints: pedicel twice as long as wide, the funicle joints distinctly narrower; first twice as long as wide, 2-6 shortening, the sixth a third longer than wide; next joint widened to form part of club, but distinctly longer than wide, the following joint a little wider, as wide as long, the penultimate still wider, wider than long. Length, 1·75 mm.

Hab.—Queensland: Cairns district. Described from one female caught by sweeping in jungle, July 21, 1913 (A. P. Dodd).

Type.—I. 5166, South Australian Museum. A female on a tag, antennae and forewings on a slide.

There is still another species from the Cairns district resembling *pulchra*, but the body is distinctly more flattened, and there are other differences.

DIPHOROPRIA, Kieffer.

Based on a male from Australia. The genus is unknown to me.

DIPHOROPRIA RUFIPES, Kieffer.

Bull. Soc. Hist. Nat., Metz, vol xii., 1905, p. 103. Australia.

DIAPRIA, Latreille.

See notes under *Ashmeadopria*, Kieffer.

DIAPRIA (?) COCCOPHAGA, Maskell.

Trans. New Zealand Instit., vol. xi. (1879), p. 229. Australia (Kieffer).

Family SCELIONIDAE.

From time to time new members of this family present themselves and call for description. It is a noteworthy fact that all species described here fall into genera already recorded from Australia.

MACROTELEIA PAUCIPUNCTATA, n. sp.

♂. Black, the antennae concolorous; legs golden-yellow, the coxae dusky, the femora and tibiae more or less washed with dusky. Head subquadrate, the vertex broad (but much wider than long), with a few large scattered punctures, and two rows of punctures along occipital margin; eyes large, bare, the lateral ocelli almost touching the eye margins; lower two-thirds of face depressed for most of its surface, smooth, dorsad and laterad of the depression with numerous large punctures. Scutum as long as greatest width, the parapsidal furrows deep and complete; median lobe with dense punctures at cephalic third in centre, the rest of the lobe smooth except for scattered minute punctures; parapsides smooth except for a row of punctures along cephalic margin, and a foveate row along lateral margin for two-thirds its length from caudad; scutellum almost smooth except for a row of foveae along cephalic and caudal margins; metanotum with four strong longitudinal carinae. Abdomen one-half longer than the head and thorax united; slender; distinctly narrower than thorax, the first six segments longer than wide; 2 and 3 subequal, the longest; wholly strongly striate, the striae not dense, about seven or eight, somewhat irregular: apex with two short sharp spines. Forewings almost reaching apex of abdomen; broad: hyaline; venation fuscous, the marginal vein a third longer than the stigmal, as long as the postmarginal. Scape not long, no longer than next two joints united; pedicel one-third longer than wide, shorter than penultimate joint: the first funicle joint distinctly longer, twice as long as wide; the apical joint somewhat longer. Abdomen linear, as wide at base as in centre. Length, 2·60 mm.

Hab.—Queensland: Yungaburra, 2,500 ft. Described from one male caught by sweeping in jungle, May 10, 1915 (A. P. Dodd).

Type.—I. 5167, South Australian Museum. A male on a tag, forewings and antennae on a slide.

PLATYSCELIO MIRABILIS, Dodd.

Originally described from a single female, the species has remained unrediscovered until recently, a second female being captured running over leaves of maize, type locality (Gordonvale, N.Q.), May 27, 1915. Additional characters are:— Head smooth, except for fine longitudinal striae around ocelli; pronotum densely punctate: median lobe of scutum densely shagreened, due to dense shallow punctures and fine longitudinal striae; parapsides smooth, as also scutellum and postscutellum, the scutellum with a few punctures on either side in a row laterad near caudal margin; metanotum smooth, produced slightly at meson caudad, with a median groove, this joining an arched short cross-groove posteriorly; laterad of the median projection with a few striae running from caudal margin. Abdomen with segments 1-5 with dense punctuation, this somewhat longitudinal; segment 6 smooth at base, then with numerous fine punctures and dense blackish pubescence, this present on extreme laterad of other segments. Coxae black. Forewings nearly hyaline in centre.

CACELLUS REGALIS, n. sp.

♀. Very similar to *augustus*, Dodd, but the scutellum is wholly punctate without the smooth mesal area; the spine on the postscutellum is shorter; the abdominal segments after the first are confluently punctate, with a somewhat longitudinal tendency (in *augustus* the punctures are not so distinct and the longitudinal tendency is much more pronounced); forewings without a mid-longitudinal stripe, faintly infuscate, the marginal vein distinctly longer than the stigmal (a little but distinctly shorter in *augustus*). In both species the sculpture of the head, scutum, and scutellum is confluently umbilicately punctate, the punctures large; also the median vein is a thick brown line, and the basal vein an obscure very oblique brown line. Length, 4·45 mm.

Hab.—Queensland: Cairns district. Described from two females caught on decayed log in jungle, 1,200 ft., April 4, 1915 (A. P. Dodd).

Type.—I. 5168, South Australian Museum. A female on a tag, antennae and forewings on a slide.

BARYCONUS MAGNIFICUS, Dodd.

Ceratoteleia magnifica, Dodd, *ante*, 1913, p. 112.

♂. Head longitudinally densely rugose, the vertex transverse, rugose-punctate. Scutum densely confluently punctate, the punctures not small, less dense on scutellum. Abdomen with segments 1 and 2 striate, 3 and following with scattered setigerous minute punctures. Postscutellum bidentate, the teeth inconspicuous on account of whitish pubescence about them.

Several males taken in jungle, 1,200-2,500 ft., Cairns district, April-May, 1915. Antennae in these specimens wholly black, except the yellow scape. Head somewhat red-brown.

BARYCONUS SUPERBUS, Dodd.

Ceratoteleia superba, Dodd, *ante*, 1913, p. 174.

Female type re-examined. Sculpture of thorax as in *magnificus;* postscutellum with an acute tooth on either side fitting rather close to apex of abdominal horn. First and second abdominal segments striate, 3 practically wholly smooth, 4-6 with scattered small punctures, 4-5 almost smooth at meson. Forewings with a white stripe in lieu of basal vein, and a mid-longitudinal white stripe.

BARYCONUS SUBSTRIATICEPS, n. sp.

♀. Dark dull-red-brown, the scutellum more or less blackish; abdomen dusky black, the third segment yellow, except laterally; legs golden-yellow; antennal scape dusky, pedicel and funicle joints yellow, the club black. Head sculptured as in *magnificus*, but the rugae are much sparser and stronger, being thus substriate. Thorax as in *superbus*. Abdomen shaped as in *superbus*, with a distinct horn at base, nearly twice as long as head and thorax united, gradually coming to a point at apex; segment 1 longitudinally rugose-striate, 2 and 3 striate, 4-6 with rather dense small punctures, 4-5 not smooth at meson; 3 a little longer than 2, as long as 4-7 united (a little shorter in *superbus*). Forewings moderately long and broad; somewhat infuscate; as in *superbus*, but stigmal vein rather more oblique; marginal rather longer, almost one-third as long as stigmal. Antennae as in *superbus*, but pedicel and funicle 1 rather longer, two and a half times as long as wide, 2 a little longer than wide; club joints 1-5 of nearly equal length. Length, 2·65 mm.

Hab.—Queensland: Yungaburra, 2,500 ft. Described from one female caught by sweeping in jungle, May 10, 1915 (A. P. Dodd).

Type.—I. 5169, South Australian Museum. A female on a tag, antennae and forewings on a slide.

BARYCONUS ALBICOXA, n. sp.

♀. Black; thorax dull chestnut-brown, the scutellum (except its margins) and scutum black, the parapsides suffused with brown; abdomen suffused with brown in centre; legs pale yellow, the coxae white; antennae black, the funicle joints brownish. Head much wider than long (dorsal aspect). Thorax one-half longer than wide, impunctate and shining, like the head; parapsidal furrows complete and distinct; post-scutellum with a short blunt tooth on either side some distance from meson. Abdomen over one-half longer than the head and thorax united: first segment nearly twice as long as wide, with a raised tubercle at base; segments 2 and 3 somewhat longer, of about equal length; segments 6 and 7 forming a short cone: first segment striate, its horn smooth, 2 striate at base, the rest of that segment, also 3, with a few striae laterad, smooth otherwise; 4 and 5 smooth, 6 and 7 with setigerous pin-punctures. Forewings long, almost reaching apex of abdomen; not very broad; somewhat infuscate; discal cilia moderately fine, very dense; submarginal vein attaining costa about middle of wing, marginal as long as the stigmal, which is rather short, oblique, its apex curved somewhat caudad; postmarginal about four times as long as the stigmal, the basal distinct, nearly perpendicular. Pedicel twice as long as wide, subequal in length to second funicle joint, the first distinctly longer, the third slightly shorter, the fourth a little longer than wide; club 6-jointed, compact, joints 1-5 much wider than long. Length, 2·45 mm.

♂. Like the female, but median lobe of scutum with numerous scattered fine punctures, postscutellum unarmed; segment 2 of abdomen without a smooth meso-caudal area, striate but smooth far laterad, 3 practically wholly smooth, 4 with a few pin-punctures, these denser on 5, still more so on 6; 5-7 transverse, 6-7 not forming a cone. Antennae long and slender, as long as body; scape pale at base, antennae otherwise black; pedicel not much longer than wide, distinctly shorter than funicle 1, which is about subequal to 2, 3-5 subequal, nearly twice as long as 1 or 2, 6-9 decreasing in length, 9 somewhat longer than 1, 10 a little longer. Length, 2·05 mm.

Hab.—Queensland: Cairns district, 1,200-2,500 ft. Described from many specimens taken on decayed logs in jungle, April-May, 1915 (A. P. Dodd).

Type.—I. 5170, South Australian Museum. A male and female on a tag, forewings and antennae on a slide.

BARYCONUS PERPULCHER, n. sp.

♀. Bright orange or golden-yellow; abdomen shining black, the first, base of second, and basal half of sixth segment bright yellow; eyes and ocelli black, also apical five antennal joints, the pedicel dusky; apex of posterior tibiae dusky. Head, viewed from above, transverse; ocelli wide apart, the lateral ones close to the eye margins; eyes not very large, pubescent. Thorax about one-half longer than wide; pronotum visible only as a narrow line; scutum with the parapsidal furrows complete and distinct; postscutellum and metanotum unarmed; head, scutum, and scutellum densely finely granulate or coriaceous. Abdomen one-half longer than the head and thorax united; first segment somewhat longer than wide, with a horn that reaches to apex of scutellum; second segment longer, the third widest but barely as long as second; 4 and 5 combined about as long as third; sixth forming a straight cone, about as long as 4 and 5 combined, the seventh very short; first segment longitudinally rugose, the second striate at base, the central striae continued down segment, the rest of the segment and 3 and 4 smooth, 5 with sparse pubescence, 6 with dense pubescence. Forewings reaching to apex of segment 4; narrow; crossed by three dark bands, one at base, the second darkest, its distal margin just touching base of stigmal knob, as long as wide, the third at wing-apex and rather longer than the second, the hyaline bands between much shorter than the dark bands; discal cilia excessively dense; submarginal vein attaining costa a little beyond middle of wing; marginal vein almost as long as the stigmal, which is short, oblique, slender, with a distinct round knob, the postmarginal very long; no trace of basal vein. Scape slender; pedicel twice as long as wide, the first funicle joint slightly longer, the second a third longer than wide, the fourth quadrate; club 6-jointed, compact, joints 2-4 of equal length, all distinctly wider than long. Length, 2·40 mm.

Hab.—Northern Territory: Darwin. Described from one female received from G. F. Hill.

Type.—I. 5171, South Australian Museum. A female on a tag, antennae and forewings on a slide.

A very beautiful and distinct species. The narrow banded forewing is much like that of *fasciatus*, Dodd, and *varipes*, Dodd, but the general structure is quite different.

ANTERIS NIGRISCUTELLUM, n. sp.

♀. Black; thorax dull-reddish, the scutellum black, the prothorax and scutum bright-reddish, the median lobe faintly washed with dusky; legs golden-yellow, also basal six antennal joints. Head much wider than long (dorsal aspect), the eyes very large, bare, the lateral ocelli touching the eye margins; vertex rather broad, with numerous small punctures; face with a deep impression occupying most of surface, with very fine scaly sculpture, and on lower face with a few striae converging toward mouth. Mandibles tridentate. Scutum and scutellum with very fine scaly sculpture, and small scattered indefinite punctures, these more pronounced on the scutellum; parapsidal furrows complete, as in *rufinotum;* postscutellum with a stout acute spine. Abdomen stout, the third segment occupying less than one-half of surface, the two first strongly striate, the third more finely so; the remaining segments with very fine scaly sculpture and scattered punctures. Forewings moderately long and broad; deeply infuscate; discal cilia dense; marginal vein over one-half as long as the stigmal, which is rather oblique, moderately long and slender. Antennae short, usual for the genus: scape long and slender; pedicel one-half longer than wide, the funicle joints narrower, the first a little longer than wide, 2-4 wider than long; club compact, wide, 6-jointed, joints 1-5 very transverse. Length, 1·75 mm.

Hab.—Queensland: Yungaburra, 2,500 ft. Described from one female caught by sweeping in jungle, May 10, 1915 (A. P. Dodd).

Type.—I. 5172, South Australian Museum. A female on a tag, antennae and forewings on a slide.

This species falls nearest to *rufinotum*, Dodd, but that species differs, *inter alia*, in having the third abdominal segment smooth, the scutum and scutellum without the fine punctures, with the fine scaly sculpture only.

SCELIO AUSTRALIS, Froggatt.

The range of this common species, formerly recorded from various districts in Eastern Queensland and New South Wales, must be further extended, since a female has been forwarded by Mr. G. F. Hill, labelled "Darwin, N.T., G. F. Hill."

MICROTELEIA PULCHRICORPUS, n. sp.

♀. Head, thorax, and first abdominal segment bright orange-yellow, the legs golden-yellow; abdomen shining black; antennae varicolored, scape dusky-yellow, the next two joints black, the four following pale yellowish-white, the apical five black. Head a little wider than the thorax, the vertex very narrow; viewed from in front, wider than long; smooth, except for scattered minute punctures; eyes occupying whole side of face, bare; ocolli in a slightly curved line, the lateral pair slighly nearer the eye margins than to the median ocellus. Scutum and scutellum smooth, without sculpture; parapsidal furrows parallel, very wide apart, delicate, but complete; scutellum much wider than long. Abdomen oval, no longer than head and thorax united, narrowed at base; the first segment transverse, third the largest, occupying about one-third of surface; the first striate, second more feebly so and smooth laterad, third with irregular impressed lines forming fine impressed reticulation, fourth with the fine reticulation with no longitudinal tendency, the rest practically smooth. Forewings just reaching apex of abdomen; moderately broad; marginal cilia rather short; discal cilia fine, not dense; with a dark band across wing at apex of submarginal and most of marginal vein, and a broader band from before apex of stigmal vein almost to wing apex, these two bands black and joined in centre of wing; submarginal vein attaining costa at slightly before middle of wing, the marginal somewhat longer than the stigmal, which is oblique, rather short; postmarginal over twice as long as stigmal. Pedicel over twice as long as wide, the first funicle joint two-thirds longer than wide, the second a little longer than wide, the next three wider than long; no distinct club, but the sixth funicle joint abruptly longer than preceding joint, 6-9 all as long or a little longer than wide; antennae much as in certain Ceraphronids. Length, 1·10 mm.

Hab.—Queensland: Cairns district. Described from one female captured running over foliage of sugarcane, lowland districts, April 29, 1915 (A. P. Dodd).

Type.—I. 5173, South Australian Museum. A female on a tag, antennae and forewings on a slide.

A very beautiful and distinct species.

HOPLOGRYON FUSCICOXA, n. sp.

♀. Black; thorax red brown, dark; the scutellum centre of scutum, and sides of thorax dusky-black; first abdominal segment reddish: coxae dusky-black, the legs otherwise golden-yellow, the tibiae somewhat dusky at apex; antennae wholly fuscous. Head transverse, the vertex narrow; reticulate, this with a slightly longitudinal tendency; lower half of face smooth in centre, the sides with striae converging toward the mouth; a carina runs from front ocellus to insertion of antennae. Scutum and scutellum densely reticulate-punctate, the punctures not large; postscutellum with a large acute spine, the latero-caudal angles of the metanotum with sharp spines. Abdomen only a little longer than greatest width, the first segment short and transverse, 1 and 2 strongly striate, 3 with a smooth area mesad at caudal half, cephalad and laterad of this striate, then farther laterad with rather dense punctures; 4 and 5 short, densely punctate at base; segment 3 ventrad, wholly densely punctate. Forewings extending beyond apex of abdomen: rather broad, truncately rounded at apex; rather deeply infuscate; discal cilia very dense, fine; stigmal vein rather long for the subfamily, somewhat oblique, the venation fuscous. Scape long and slender, pedicel one-half longer than wide; first funicle joint as wide and much longer, two and a half times as long as wide, the second subequal to first, third abruptly shorter, somewhat wider than long, the fourth transverse; club slender, 6-jointed, the second joint longest and widest, a little wider than long.

Hab.—Queensland: Yungaburra, 2,500 ft. Described from two females caught by sweeping in jungle, May 10, 1915 (A. P. Dodd).

Type.—I. 5174, South Australian Museum. A female on a tag, antennae and forewings on a slide.

HOPLOGRYON CASTANEITHORAX, n. sp.

♂. Like the preceding species, but the thorax brighter, only the centre of scutum and scutellum dusky; first abdominal segment bright reddish-yellow, and as long as wide, the third with rather dense small punctures at base, with a smooth area caudad and mesad, laterad with scattered punctures; punctures on segments 4 and 5 not dense; face and vertex longitudinally striate; sculpture of scutum and scutellum somewhat coarser, appearing somewhat rugose; spine on postscutellum shorter and stouter, the latero-caudal angles of metanotum merely acute. Antennae black, the scape brown; nearly twice as long as the body, the pedicel very short, the funicle joints long and subequal. Length, 1·65 mm.

Hab.—Queensland: Yungaburra, 2,500 ft. Several males taken with *fuscicoxa*.

Type.—I. 5175, South Australian Museum. A male on a tag, antennae and forewings on a slide.

This species is strongly suspected of being the male of *fuscicoxa*, with which it was obtained, but the differences are too pronounced to appear sexual, and it seemed wiser to describe it as a distinct species.

ODONTACOLUS LAEVIVENTRIS, n. sp.

♀. Black; abdomen bright brown, narrowly margined darker, also the apex darker and the horn at base: coxae black, the legs otherwise golden-yellow; antennae dusky-yellow, the club black Antennae 7-jointed; scape moderately long; pedicel two and a half times as long as wide, the funicle joints somewhat narrower, the first twice as long as wide, the others very transverse; club distinctly longer than the funicle, fully twice as long as wide. Forewings attaining apex of abdomen; moderately broad; subhyaline; discal cilia moderately coarse, dense; venation golden-yellow; marginal vein somewhat shorter than the postmarginal, which is nearly one-half as long as the long stigmal; basal vein faintly marked. Head and thorax with shallow close thimble-punctures and fine surface sculpture. Abdomen as long as head and thorax combined: first and second segments striate, the third occupying two-fifths of surface, reticulated: horn on basal segment almost reaching apex of scutellum. Length, 1·35 mm.

Hab.—Queensland: Cairns district. Described from one female caught by sweeping on edge of jungle, 1,200 ft., February 20, 1915 (A. P. Dodd).

Type.—I. 5176, South Australian Museum. A female on a tag, antennae and forewings on a slide.

TRISSOLCUS CORIACEUS, n. sp.

♀. Black, the coxae concolorous; rest of legs and first six antennal joints golden-yellow. Head, viewed from above, transverse, wider than the thorax, the occiput concave, the frons a little convex: densely coriaceous; eyes large, bare. Scutum and scutellum with similar sculpture to the head, the scutum with two short grooves at caudal margin, wide apart, the thorax somewhat wider than long. Abdomen a little narrower than thorax, somewhat wider than long, the first segment short, striate, the second occupying fully one-half of length, with dense longitudinal scaly reticulation, the remainder with fine pin-punctures. Forewings extending a little beyond apex of abdomen; rather broad; hyaline; discal cilia fine and dense; venation pale-yellow; the stigmal vein very long, the marginal not one-half as long, the postmarginal over twice as long as stigmal. Scape slender; pedicel fully twice as long as wide, the funicle joints slightly narrower, the first barely twice as long as wide, the second quadrate, the third transverse; club 6-jointed, the first joint small, the second the longest, but wider than long. Length, 1·00 mm.

Hab.—Queensland: Cairns district. Described from two females caught by sweeping forest growth, mountain side, 2,000 ft., May 8, 1915 (A. P. Dodd).

Type.—I. 5177, South Australian Museum. Two females on a tag, forewings and antennae on a slide.

EUMICROSOMA, Gahan.

Proc. U.S. National Museum, vol. xlvi., 1913, p. 442, pl. xxxix., fig. 1.

Baeoneura (Foerster), Dodd, Trans. Roy. Soc., S.A., 1913, p. 176.

Baeoneurella, Dodd, *l.c.*, 1914, p. 124.

Eumicrosoma antedates *Baeoneurella* by several months. *Baeoneurella* has all along been wrongly described, on account of its indistinct venation. Gahan's description of *E. benefica*, the type species, and the accompanying figure, show its very close relationship with the Australian species.

Family CERAPHRONIDAE.

LYGOCERUS UNILINEATUS, n. sp.

♀. Shining black, the scutum and scutellum rich reddish-brown, with a rather broad, black, median stripe, running from cephalic margin of scutum to apex of scutellum; legs golden-yellow, the posterior coxae black for basal half; antennae black, the scape yellow, the next few joints fuscous. Head distinctly wider than the thorax, the vertex not thin; vertex and upper half of face with setigerous pin-punctures, the lower half scaly; eyes occupying whole side of face, hairy; occiput coarsely scaly; a foveate groove runs from median ocellus to posterior margin of occiput. Scutum and scutellum with fine, dense, scaly sculpture; parapsidal and median furrows of scutum deep and distinct, the former foveate, the latter simple; grooves between scutellum and axillae foveate;

scutellum distinctly longer than greatest width; metanotum coarsely rugose, with a short but distinct neck. Abdomen a little shorter than head and thorax united, slightly concave above, deeply convex beneath, pointed at apex; second segment occupying one-half of surface; striate at base, smooth for the rest, with a circular fovea some distance from base on either side dorsad. Forewings long; very broad; somewhat infuscate; discal cilia moderately fine and dense; venation fuscous, stigma over twice as long as greatest width, the stigmal vein nearly twice length of stigma. Pedicel over twice as long as greatest width, the first funicle joint distinctly longer, over thrice as long as greatest width, second a little shorter than pedicel, 2-8 shortening, but all distinctly longer than wide. Length, 2·45 mm.

Hab. Queensland: Cairns district. Described from one female taken on decayed log in jungle, 1,200 ft., April 6, 1915 (A. P. Dodd).

Type.- I. 5178, South Australian Museum. A female on a tag, antennae and forewings on a slide.

LYGOCERUS ALBOVARIUS, n. sp.

♀. Black; the metathorax, extreme base of abdomen, and the legs, pure white; the anterior coxae, trochanters, and femora, black; antennae pure white, the apical joint black, the scape black at extreme base and with a black transverse stripe at two-thirds its length. Forewings attaining apex of abdomen; rather broad; lightly infuscate, with a hyaline patch just distad of stigma, and another opposite this on caudal margin, the proximal third or more subhyaline; venation white, the stigma fuscous but white proximal; discal cilia not fine, very dense; stigma over twice as long as wide, the stigmal vein a little longer. Pedicel two and a half times as long as wide, the first funicle joint narrower, two-thirds longer than wide, the funicle slightly incrassate, the joints as long or a little longer than wide. Head somewhat wider than the thorax, the frons convex; eyes occupying whole side of face, hairy. Thorax rather stout, the parapsidal and median furrows of scutum delicate, not distinct, also the grooves between scutellum and axillae; scutellum longer than wide; metanotum with a short distinct neck. Head, scutum, and scutellum with very dense and fine rugosity. Abdomen not or scarcely longer than the thorax; pointed-ovate; straight above, gently convex beneath, the second segment occupying one-half of surface; smooth, with a few striae at base. Length, 1·45 mm.

Hab.—Queensland: Carins district. Described from one female caught by sweeping in jungle, 1,200 ft., April 4, 1915 (A. P. Dodd).

Type.—I. 5179, South Australian Museum. A female on a tag, antennae and forewings on a slide.

CONOSTIGMUS PRETIOSUS, n. sp.

♀. Head black; metanotum, sides, and venter of thorax, a large spot involving most of each parapside and another on median lobe cephalad, and centre of scutellum more or less, dusky-black; rest of thorax bright chestnut: abdomen dusky-black, its base yellowish; legs golden-yellow, also basal five antennal joints, the sixth dusky, the apical five black. Head transverse, no wider than thorax: eyes large, hairy: ocelli close together: a foveate line from front ocellus to occiput. Head, scutum, and scutellum smooth, except for minute setigerous punctures; median and parapsidal furrows of scutum deep and foveate: scutellum longer than wide, with a foveate groove around it laterad and caudad. Abdomen no longer than head and thorax united, no wider than thorax, almost straight above, convex beneath, the apex a little upturned, the second segment occupying nearly two-thirds its surface: smooth, except for striae at base. Forewings attaining apex of abdomen; broad, the apex broadly rounded; discal cilia rather dense: infuscate, this deepest in centre; venation fuscous, the stigmal vein over twice as long as the semicircular stigma: a longitudinal white stripe through centre of wing. Pedicel two-thirds longer than wide, the first funicle joint over twice as long as wide, the second as wide as long, 3-8 somewhat wider than long, the fifth rather larger than fourth, the apical joint over twice as long as wide. Length, 1·50 mm.

Hab.—Queensland: Yungaburra, 2,500 ft. Described from three females caught by sweeping in jungle, May 10, 1915 (A P. Dodd).

Type. -I. 5180, South Australian Museum. A female on a tag, antennae and forewings on a slide.

ERRATA.

This opportunity is taken to correct errors appearing in a recent paper of the author's:—

Transactions Royal Society of South Australia, 1914.

Page 122, line 4 from bottom, "SCELIONAE," read "SCELIONINAE."

Page 122, line 2 from bottom, "♀," read "♂."

Page 123, line 25, "female," read "male."

THE FISHES OF THE SOUTH AUSTRALIAN GOVERNMENT TRAWLING CRUISE, 1914.

By EDGAR R. WAITE, Director, South Australian Museum,
and
ALLAN R. McCULLOCH, Zoologist, Australian Museum.

[*Contribution from the South Australian and Australian Museums.*]

PLATES XII. TO XV. AND TEXT FIGURE 1.

[Read October 14, 1915.]

As a result of the prospecting cruise of the ill-fated Federal trawler "Endeavour" in South Australian waters, the Director, the late Harald C. Dannevig, reported rich fishing grounds in the Great Australian Bight.

With a view to reaping some of the harvest there indicated, the South Australian Government chartered the trawler "Simplon" (Capt. W. Brown), and the senior author accompanied the vessel on her cruise in the interests of the Government and of the South Australian Museum, while the Fisheries Department was represented by Inspector W. D. Bruce. Owing to extremely unfavourable weather and the consequent limitation of operations, together with unpayable catches of fish, one essay only was made. The cruise extended from September 16 to October 1, 1914, and embraced the area between lat. 32° 36′ and 34° 50′ S., and long. 128° 45′ and 133° 12′ E., the depths exploited ranging from 22 to 140 fathoms. Of the ten hauls made, eight were technically successful, but of these, two only were regarded as payable. The best haul produced ten baskets of fish, about 700 ℔. in weight, composed almost wholly of Swallow-tails (*Trachichthodes lineatus*).

In the absence of a larger and faster vessel, it can scarcely be expected that trawling will be commercially profitable on grounds so far distant from the port of Adelaide as those prospected by the "Endeavour." As regards the "Simplon," it necessitated a voyage of 500 miles before the trawl was put over, and a similar distance had to be traversed when the fishing was concluded. The cost in coal, wages, etc., under these conditions is such a heavy item, that phenomenal catches would have to be made to recoup the outlay. The first step towards the institution of trawling in South Australia must undoubtedly be a systematic survey of our waters, to ascertain what trawling grounds we possess nearer market, their extent and capabilities.

It may not be out of place in the record of a trawling cruise, to draw attention to the fact that, whereas formerly the people of Australia and New Zealand were extremely prejudiced against eating any but what were regarded as the primest fish, such a change of opinion or practice has taken place, that species previously despised now command a ready and eager sale. In Adelaide, as doubtless everywhere else, fish is served and accepted at public tables under assumed names, but, further than this, the public is buying so-called inferior kinds in the open market. In New South Wales the State trawlers are regularly disposing of large quantities of fish which a few years ago would have had to be thrown away as unsaleable. Now, however, tons of Rays *(Urolophus, Aetobatis, Raja)* are utilized; even the largest Sting Rays *(Dasyatis)* are cut up and sold, generally under the name of "Skate," and the fishermen themselves eat them on board in preference to other fish. The "fish-bone" trouble will thus, at any rate, be avoided. The much despised Leather Jacket *(Cantherines ayraudi)*, the *bete noir* of the line fisherman, is now eagerly purchased, while the Flying Gurnard *(Pterygotrigla polyommata)*, formerly regarded as of small account, is not only readily marketed, but has proved to be one of the most abundant of the edible fishes of the deeper waters of New South Wales.

The change here briefly indicated may be due to the increased cost of meat consequent on the war and on drought conditions, but the encouraging fact remains that having thus eaten despised fishes as a *quasi* enforced experiment, the public will, it is believed, in future purchase such fishes under any condition, and the trawling industry is likely to be enormously benefited, and it is hoped extended thereby. We believe that it is well within the mark when we say that hitherto fully half a trawler's catch of good wholesome fish had to be returned to the sea owing to prejudice. In thus making greater use of our marine wealth we are but following the lead of Britain, where twenty years ago Dog Fishes and other so-called coarse fish were thrown away as offal, but to-day find a ready market.(1)

Further discussion on the economic aspect of trawling is outside the province of the paper, the object of which is to enumerate the fishes obtained.

The Ostracions, merely listed here, form the subject of a separate paper.

---

(1) Waite, "Sci. Results N.Z. Govt. Trawling Exp.," Rec., Cant. Mus., i., 1911, p. 200, *et seq.*

All localities may be quoted as the Great Australian Bight.

Details of the eight effective hauls (stations) are as follows:—

	TIME. 1914.	POSITION.	DEPTH IN FATHOMS.	FISHES TAKEN.
	Sept. 20, 7.30 to 10.45 p.m.	Lat. 33° 29′ S. Long. 128° 55′ E.	45-82	*Trachichthodes gerrardi*
	Sept. 21, 9 30 to 11.30 a.m.	Lat. 32° 36′ S. Long. 129° 54′ E	22	*Parascyllium ferrugineum* *Eugaleus australis* *Urolophus cruciatus* *Dasyatis brevicaudatus* *Caranx georgianus* *Pseudolabrus tetricus* *Cantherines ayraudi* *Cantherines setosus* *Capropygia unistriata* *Aracana aurita* *Tetraodon armilla*
	Sept 21, 5.40 to 9 p m.	Lat. 33° 38′ S. Long. 128° 45′ E.	80-140	*Squatina australis* *Urolophus cruciatus* *Trachichthodes gerrardi* *Trachichthodes lineatus* *Dactylosparus macropterus* *Oplegnathus woodwardi* *Zanclistius elevatus* *Pentaceropsis recurvirostris* *Cyttosoma boops* *Neosebastes thetidis* *Pterygotrigla polyommata* *Neoplatycephalus conatus* *Kathetostoma nigrofasciatum* *Cantherines ayraudi* *Capropygia unistriata* *Aracana angusta* *Tetraodon armilla* *Atopomycterus nicthemerus*
4.	Sept. 22, 12.15 to 4 a.m. (night haul)	Five miles north-west from Station 3	88-94	*Heterodontus philippi* *Scylliorhinus analis* *Galeorhinus antarcticus* *Squalus fernandinus* *Squatina australis* *Trachichthodes gerrardi* *Trachichthodes lineatus* *Paratrachichthys trailli* *Callanthias allporti* *Plagiogeneion macrolepis* *Dactylosparus macropterus* *Oplegnathus woodwardi* *Zanclistius elevatus*

STATION.	TIME. 1914.	POSITION.	DEPTH IN FATHOMS.	FISHES TAKEN.
4.	*Continued*			*Pentaceropsis recurvirostris* *Cyttosoma boops* *Neosebastes thetidis* *Neoplatycephalus conatus* *Chelidonichthys kumu* *Kathetostoma nigrofasciatum* *Cantherines ayraudi* *Anoplocapros gibbosus* *Tetraodon armilla*
5.	Sept. 28, 4.15 to 5.30 p.m.	Lat. 34° 43′ S. Long. 133° 12′ E	85	*Urolophus cruciatus* *Trachichthodes gerrardi* *Trachichthodes lineatus* *Pterygotrigla polyommata* *Cantherines ayraudi* *Cantherines hippocrepis* *Capropygia unistriata* *Aracana aurita*
6.	Sept. 28, 8 to 11.15 p.m.	Same as Station 5	85	*Galeorhinus antarcticus* *Pristiophorus nudipinnis* *Trachichthodes gerrardi* *Trachichthodes lineatus* *Dactylosparus macropterus* *Oplegnathus woodwardi* *Zanclistius elevatus* *Pentaceropsis recurvirostris* *Pterygotrigla polyommata* *Kathetostoma nigrofasciatum* *Cantherines ayraudi* *Capropygia unistriata* *Tetraodon armilla*
7.	Sept. 29, 12.30 to 4.30 a.m (night haul)	Lat. 34° 50′ S. Long. 133° 11′ E.	85	*Pristiophorus nudipinnis* *Trachichthodes gerrardi* *Trachichthodes lineatus* *Paratrachichthys trailli* *Dactylosparus macropterus* *Oplegnathus woodwardi* *Neosebastes thetidis* *Neoplatycephalus conatus* *Kathetostoma nigrofasciatum* *Cantherines mosaicus* *Tetraodon armilla*
8.	Sept. 29, 11.30 a.m. to 3.30 p.m.	Lat. 34° 46′ S. Long. 133° 10′ E.	72	*Trachichthodes gerrardi* *Trachichthodes lineatus* *Callanthias allporti* *Dactylosparus macropterus* *Pterygotrigla polyommata* *Cantherines setosus* *Capropygia unistriata*

Family HETERODONTIDAE.

HETERODONTUS, Blainville, 1816.

HETERODONTUS PHILIPPI, Bloch and Schneider.

Squalus philippi, Bloch and Schneider: Syst. Ichth., 1801, p. 134.

Heterodontus philippi, Blainville: Bull. Soc. Phil., 1816, p. 121.

Cestracion philippi, Cuvier: Reg. Anim., ii., 1817, p. 129.

Centracion philippi, Garman: Mem. Mus. Comp. Zool., xxxvi., 1913, p. 182.

Port Jackson Shark.

Station 4, 88-94 fathoms; also taken on hand lines in Streaky Bay in 8 fathoms.

Family SCYLLIORHINIDAE.

SCYLLIORHINUS, Blainville, 1816.

SCYLLIORHINUS (HALAELURUS) ANALIS, Ogilby.

Scyllium maculatum, Ramsay: Proc. Linn. Soc., N.S.W., v., 1880, p. 97 (not *S. maculatum*, Bloch and Schneider).

Scyllium anale, Ogilby: *ib.*, x., 1885, p. 445.

Scyliorhinus analis, *id.*: *ib.* (2), iv., 1889, p. 180.

Catulus analis, Waite: Mem. Aust. Mus., iv., 1899, p. 31, pl. ii., fig. 1.

Halaelurus analis, Garman: Mem. Mus. Comp. Zool., xxxvi.; 1913, p. 85.

Spotted Dog Fish.

Station 4, 88-94 fathoms

Family ORECTOLOBIDAE.

PARASCYLLIUM, Gill, 1861.

PARASCYLLIUM FERRUGINEUM, McCulloch

Parascyllium ferrugineum, McCulloch; "Endeavour" Sci. Res., i., 1911, p. 7, pl. ii., fig. 2, and text fig. 2.

Rusty Dog Fish.

Station 2, 22 fathoms.

Family GALEORHINIDAE.

GALEORHINUS, Blainville, 1816 (*fide* Garman).

GALEORHINUS ANTARCTICUS, Günther.

Mustelus antarcticus, Günther: Cat. Fish. Brit. Mus., viii., 1870, p. 387.

Galeus antarcticus, Waite: Mem. Aust. Mus., iv., 1899, p. 33.

Gummy.

Station 4, 88-94 fathoms, and Station 6, 85 fathoms.

Family CARCHARHINIDAE.

EUGALEUS, Gill, 1864 (*fide* Garman).

EUGALEUS AUSTRALIS, Macleay.

Galeus australis, Macleay: Proc. Linn. Soc., N.S.W., vi., 1881, p. 354.

Galeorhinus australis, Hutton: Index Faunae, N.Z., 1904, p. 54.

School Shark.

Station 2, 22 fathoms.

Family SQUALIDAE.

SQUALUS, Linnaeus, 1758.

SQUALUS FERNANDINUS, Molina.

Squalus fernandinus, Molina: Saggio sul. stor. nat. Chili, 1782, p. 229.

Spinax fernandezianus, Gay: Hist. Chile, ii., 1854, p. 365.

Spiny Dog Fish.

Station 4, 88-94 fathoms.

Family PRISTIOPHORIDAE.

PRISTIOPHORUS, Müller and Henle, 1837.

PRISTIOPHORUS NUDIPINNIS, Günther.

Pristiophorus nudipinnis, Günther: Cat. Fish. Brit. Mus., viii., 1870, p. 432.

Saw Shark.

Stations 6 and 7, 85 fathoms.

Family SQUATINIDAE.

SQUATINA, Valmont, 1768.

SQUATINA AUSTRALIS, Regan.

Squatina australis, Regan: Ann. Mag. Nat. Hist., (7), xviii., 1906, p. 438.

Angel Shark.

Station 3, 80-140 fathoms, and Station 4, 88-94 fathoms.

Family DASYATIDAE.

UROLOPHUS, Müller and Henle, 1837.

UROLOPHUS CRUCIATUS, Lacépède.

Raia cruciatus, Lacépède: Ann. Mus., iv., 1804, p. 201.

Leiobatus cruciatus, Blainville: Bull. Soc. Phil., 1816, p. 121; 1837, p. 117.

Urolophus cruciatus, Müller and Henle: Monatsb. Akad. Wiss., Berlin, 1837, p. 117.

Urolophus ephippiatus, Richardson: Voy. "Ereb. and Terr.," 1848, p. 35, pl. xxiv.

Banded Stingaree.

Station 2, 22 fathoms; Station 3, 80-140 fathoms; and Station 5, 85 fathoms.

DASYATIS, Rafinesque, 1810.

(?) DASYATIS BREVICAUDATUS, Hutton.

Trygon thalassia, Hutton: Cat. Fish., N.Z., 1872, p. 85.

Trygon brevicaudata, Hutton: Ann. Mag. Nat. Hist., (4), xvi., 1875, p. 317.

Dasybatis brevicaudatus, *id.*: Index Faunae N.Z., 1904, p. 53.

Dasyatis brevicaudatus, McCulloch: "Endeavour" Sci. Res., iii, p. 102, pl. xv., fig. 1, pl. xvii., fig. 1.

Sting Ray.

Station 2, 22 fathoms. A smooth-backed Sting Ray, presumed to be of this species, was thrown overboard before it could be further examined.

Family BERYCIDAE.

TRACHICHTHODES, Gilchrist, 1903.

TRACHICHTHODES LINEATUS, Cuvier and Valenciennes.

Beryx lineatus, Cuv. and Val.: Hist. Nat. Poiss., iii., 1829, p. 226. Günther: Cat. Fish. Brit. Mus., i., 1859, p. 13.

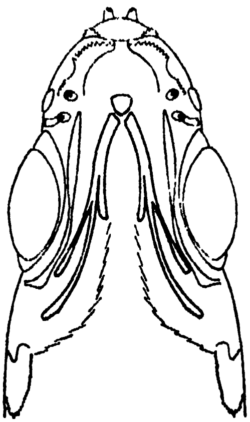
Beryx mulleri, Klunzinger: Sitz. Akad. Wiss. Wien., lxxx., 1880, p. 359, pl. iii., fig. 1.

Swallow-tail.

B. viii.; D. vi. 14; A iv. 14; P. 14; V. i. 7; C. 18+10; L. lat 51; L. tr. 6+15.

Length of head 3·17, height of body 2·6, and length of caudal 2·01 in the length, diameter of eye 2·6, interorbital space 3·5, and length of snout 3·9 in the head.

Head short, deeper than long, its profile steep and straight. The eye is round, half the depth of the head at the orbit; its hinder edge lies midway between the posterior nostril and the margin of the opercle. The hinder nostril is the larger, and the bridge is comparatively narrow. The maxilla extends slightly beyond the middle of the eye; it is greatly broadened behind, its distal portion being fully half the diameter of the orbit; a jagged spine at its upper end, the base of which is received into a notch in the preorbital. Turbinal bones with sharp spines; edge of preorbital finely serrated; infraorbital and supraciliary bones roughened. The interorbital ridges arise together in a rosette; their outer



Trachichthodes lineatus, C. and V.

edges diverge and run subparallel to the supraciliary bones, their inner ones at first diverge and then become parallel, as shown in the cut. The postocular and preopercle diverge widely below; both have finely serrated margins, becoming spinous at the angles: border of the opercle also spinous, but without definite strong spines. Lower jaw strongly projecting, its symphysis receivable into a wide edentulous notch in the premaxilla; two strong, blunt, and short spines project horizontally forward from the tip of the mandible. Gills four, a narrow slit behind the fourth; gill-rakers long and slender, 35 on the first arch, of which 26 are on the lower limb.

Teeth.—A band of coarse villiform teeth in each jaw; those bordering the premaxillary notch and those at the mandibulary symphysis much enlarged; a triangular patch on the vomer and a band on each palatine; tongue smooth.

Fins.—The dorsal commences well behind the base of the pectoral; the first spine is short, the following regularly increase in size to the sixth or last, which is one-fourth longer than the diameter of the eye; the first ray is longest, a little longer than the last spine. The first spine of the anal lies below the fifth dorsal ray, and the fin extends much further back than does the dorsal. Pectoral almost as long as the head; it is pointed above and extends to above the insertion of the anal. Ventral spine flat and strong, half the length of the head; the first ray is longer, and reaches beyond the vent. Caudal very deeply forked; the middle rays are not half the diameter of the eye, while the longest ray of the upper lobe, which slightly exceeds the lower one, is one-half longer than the head, the length of the peduncle above is nearly twice, and its depth slightly more, than the diameter of the eye.

Scales.—Scales are present on the lower part of the cheek and on the anterior half of the opercle; preopercle naked. All the scales covered with fine striae, which terminate in points averaging 25 in number; a sheath is formed at the bases of the vertical fins, and a triangular scale lies at the axil of the ventral. The lateral line arises with a slight curve at the upper part of the opercle and runs almost straight to the middle caudal rays, each scale with a median notch.

Colour.—Crimson, with the middle of each scale silvery, an alternate longitudinal line of red and silver being thus formed; fins crimson, with the spines and the outer rays of the caudal colourless.

Length.—260 mm.; to end of caudal lobe, 356 mm.

The more elongate form, the smaller and more numerous scales, and the long and more deeply forked caudal are features by which this species may be readily recognized from either *T. affinis* or *T. gerrardi.*

The Swallow-tail, by which very characteristic name the species is known to the South Australian fishermen, was the commonest fish taken on the cruise. The catch at Station 3 weighed 70 ℔., while no less than 700 ℔. weight was netted at Station 4.

Stations 3, 4, 5, 6, 7, and 8, 72-140 fathoms.

TRACHICHTHODES GERRARDI, Günther.

Beryx gerrardi, Günther: Ann. Mag. Nat. Hist., (5), xx., 1887, p. 238.

Austroberyx gerrardi, McCulloch: "Endeavour" Sci. Res., i., 1911, p. 41, pl. viii.

Red Snapper.

Contrary to local belief, the "Red Snapper" of South Australia is *T. gerrardi*, and not *T. affinis;* not a single specimen of the latter was recognized in the hauls, nor have I so far seen it in the markets, though *T. gerrardi* is to be had daily, often in large quantities. The colouration is similar to that of the Eastern species, and may be thus described:—The ground is iridescent silver suffused with blood-red; this colour occurs where the scales overlap, so that longitudinal lines are produced, separated by the silver tint of the body of the scales. The dorsal spines are colourless, the membrane red, whereas the rays are red and the membrane untinted; the colouration of the anal is similar to the soft dorsal. The pectorals and ventrals are slightly suffused with red; the caudal is red, with the outer and middle rays colourless.

Stations 1, 3, 4, 5, 6, 7, and 8; 45-140 fathoms.

PARATRACHICHTHYS, Waite, 1899.

PARATRACHICHTHYS TRAILLI, Hutton.

Trachichthys trailli, Hutton: Trans. N.Z. Inst., viii., 1876, p. 212.

Trachichthys macleayi, Johnston: Proc. Roy. Soc., Tas., 1880, p. 56.

Paratrachichthys trailli, Waite: Mem. Aust. Mus., iv., 1899, p. 65.

Roughy.

Station 4, 88-94 fathoms, and Station 7, 85 fathoms.

Family SERRANIDAE.

CALLANTHIAS, Lowe, 1839.

CALLANTHIAS ALLPORTI, Günther.

Callanthias allporti, Günther: Ann. Mag. Nat. Hist., (4), xvii., 1876, p. 300.

Callanthias platei, Boulenger: *id.* (7), iii., 1899, p. 346.

Callanthias platei australis, Ogilby: Proc. Linn. Soc., N.S.W., xxiv., 1899, p. 173.

Anogramma allporti, Ogilby: *ib.*, p. 175.

Allport's Perch.

Station 4, 88-94 fathoms, and Station 8, 72 fathoms.

Family ERYTHRICHTHYIDAE.

PLAGIOGENEION, Forbes, 1890.

PLAGIOGENEION MACROLEPIS, McCulloch.

Plagiogeneion macrolepis, McCulloch: "Endeavour" Sci. Res., ii., 1914, p. 104, pl. xx.

Station 4, 88-94 fathoms.

Family CHEILODACTYLIDAE.

DACTYLOSPARUS, Gill, 1862.

DACTYLOSPARUS MACROPTERUS, Forster.

Sciaena macroptera, Forster: in Bloch and Schneider, Syst. Ichth., 1801, p. 342.

Cheilodactylus macropterus, Richardson: Proc. Zool. Soc., 1850, p. 62.

Jackass Fish.

Stations 3, 4, 6, 7, and 8; 72-140 fathoms.

Family OPLEGNATHIDAE.

OPLEGNATHUS, Richardson, 1840.

OPLEGNATHUS WOODWARDI, Waite.

Hoplegnathus woodwardi, Waite: Rec. Aust. Mus., iii., 1900, p. 212, pl. xxxvii.

Knife Jaw.

Stations 3, 4, 6, and 7; 80-140 fathoms.

Family CARANGIDAE.

CARANX, Lacépède, 1802.

CARANX GEORGIANUS, Cuvier and Valenciennes.

Caranx georgianus, Cuv. and Val.: Hist. Nat. Poiss., ix., 1833, p. 85.

Trevally.

Station 2, 22 fathoms.

Family TRICHIURIDAE.

THYRSITES, Cuvier, 1829.

THYRSITES ATUN, Euphrasen.

Scomber atun, Euphrasen: K. Vetensk. Acad. Nya. Handl., xii., 1791, p. 315.

Thyrsites atun, Cuv. and Val.: Hist. Nat. Poiss., viii., 1831, p. 196, pl. ccxix.

Thyrsites altivelis, Richardson: Proc. Zool. Soc., 1839, p. 99.

Thyrsites chilensis, Cuv. and Val.: *ib.*, p. 204.

Barracouta.

Caught on hand-lines near the coasts. All specimens I have seen in South Australia, including those offered in the markets, are very lean and ill-conditioned, quite different from examples with which I was familiar in New Zealand.

Family HISTIOPTERIDAE.

ZANCLISTIUS, Jordan, 1907.

ZANCLISTIUS ELEVATUS, Ramsay and Ogilby.

Histiopterus elevatus, Rams. and Ogil.: Proc. Linn. Soc., N.S.W. (2), iii., 1888, p. 1311.

Zanclistius elevatus, Waite: Proc. N.Z. Inst., i., 1910, p. 25.

Long-finned Boar Fish.

Stations 3, 4, and 6, 80-140 fathoms.

PENTACEROPSIS, Steindachner, 1883.

PENTACEROPSIS RECURVIROSTRIS, Richardson.

Histiopterus recurvirostris, Richardson: Voy. "Ereb. and Terr.," 1845, p. 34, pl. xxii., figs. 5 and 6.

Pentaceropsis recurvirostris, Steindachner: Denk. Akad. Wiss. Wien., xlviii., 1883, p. 13, footnote, pl. vi.

Prosoplismus recurvirostris, Waite: Rec. Aust. Mus., v., 1903, p. 58, pl. vi.

Striped Boar Fish.

Stations 3, 4, and 6, 80-140 fathoms.

Family CYTTIDAE.

CYTTOSOMA, Gilchrist, 1904.

CYTTOSOMA BOOPS, Gilchrist.

Cyttosoma boops, Gilchrist: Marine Invest. S. Africa, iii., 1904, p. 6, pl. xxiii.

Ox-eyed Dory.

Stations 3 and 4, 80-140 fathoms.

Family PSEUDOLABRIDAE.

PSEUDOLABRUS, Bleeker, 1861.

PSEUDOLABRUS TETRICUS, Richardson.

Labrus tetricus, Richardson: Proc. Zool. Soc., 1840, p. 25.

Labrichthys ephippium, Günther: Ann. Mag. Nat. Hist. (3), xi., 1863, p. 116.

Labrichthys tetrica, Klunzinger: Arch. für Naturg., xxxviii., 1872, p. 37.

Labrichthys vestita, Castelnau: Proc. Zool. Soc., Vict., i., 1872, p. 151.

Labrichthys cyanogenys, Rams. and Ogil.: Proc. Linn. Soc., N.S.W. (2), ii., 1887, p. 242.

Parrot Fish.

Station 2, 22 fathoms.

Family SCORPAENIDAE.

NEOSEBASTES, Guichenot, 1868.

NEOSEBASTES THETIDIS, Waite.

Sebastes thetidis, Waite: Mem. Aust. Mus., iv., 1899, p. 100, pl. xx.

Sebastodes thetidis, Waite: Mem. N.S.W. Nat. Club, ii., 1904, p. 47.

Neosebastes thetidis, McCulloch: "Endeavour" Sci. Res., iii., 1915, p. 154.

Thetis Fish

Stations 3, 4, and 7; 80-140 fathoms.

Family PLATYCEPHALIDAE.

PLATYCEPHALUS, Bloch and Schneider, 1801.

NEOPLATYCEPHALUS, Castelnau, 1872.

The species of this subgenus are distinguished from the typical *Platycephalus* by the great development of their mandibular and palatine teeth, which, together with some near the premaxillary symphysis, form strong canines.

PLATYCEPHALUS (NEOPLATYCEPHALUS) CONATUS, n. sp.

Deep-water Flathead.

Pl. xii.

D. viii.-ix. 14; A. 14; P. 21; V. i. 5; C. 14-15; L. lat. 74-78.

Length of head, from the premaxillary symphysis to the end of the opercular lobe, 2·7-2·8, in that from the premaxillary symphysis to the hypural joint. Snout, including the lower jaw, 3·1-3·2 in the head. Orbit 1·5 in the snout and

4·7-5 in the head. Interorbital space 2·1-2·3 in the length of the orbit and 3·2-3·6 in the snout. Breadth behind the pectorals 1·9-2·09, third dorsal spine 2·3-2·4, and longest dorsal ray 2·6-2·8 in the head.

Head.—Cranial ridges numerous and distinct, but without spines. Anterior orbital spine moderately prominent; inner orbital margins raised, leaving the interorbital space concave. Spines of the preorbital bone small. Cheek with two parallel ridges, with a hollow between them; the upper one bears a microscopic spine just behind the verticle of the postorbital margin, from which a series of ridges radiate over the exposed preopercular bone. Two strong preopercular spines, the lower of which is the larger, and the upper one is directed obliquely upward. Anterior nostril with a short tentacle. The maxilla extends to below the anterior third of the eye. Gill-rakers developed only on the hinder portion of the lower limb of the first arch, where they are short and thick, becoming longer as they approach the angle; anteriorly they are represented by mere groups of spines.

Teeth.—Upper jaw with a band of villiform teeth on each side, which is expanded near the symphysis, where there are also several strong canines. Sides of mandible with a single row of enlarged canine-like teeth, which are largest in the middle of the series and near the symphysis; some minute teeth are present on the outer side of the bases of the larger ones. Vomerine teeth arranged in a single arched series, those in the middle being very small, the outer ones larger. Palatines armed with a row of strong canines, which decrease in size backwards, and have some minute teeth external to their bases.

Scales.—Body covered with ctenoid scales of moderate size, which extend forward to the anterior margin of the eye. Lateral line scales not differentiated from the others; the first two are usually spiniform. There are about 78-88 rows of scales above the lateral line, according to the direction in which they are counted.

Fins.—Origin of the first dorsal fin behind the opercles; the first spine is very small, the third the longest; the second ray is the longest, the others decreasing in length backwards. Anal commencing a trifle behind and terminating well behind the dorsal; its rays are shorter than those of that fin, the fourth the highest, the others decreasing backwards. Ventrals reaching a little beyond the origin of the anal. Caudal subtruncate.

Colour.—Light sandy-yellow after long preservation in formalin, almost without darker marking. There is a dark area in the middle of the opercle, and some bluish blotches along the side below the lateral line. Pectorals, ventrals, and middle of caudal fin very slightly darker than the rest of the fins.

Described from three specimens, 287-300 mm. long; the specimen figured is 300 mm. in length, and is selected as the type. It is deposited in the South Australian Museum. A series of thirty-six specimens, 227-560 mm. in length, exhibits some variation in the length of the eye and the breadth of the interorbital space; the former is 4·5 in the head in small examples and 5·9 in the largest specimen: the interorbital space is much broader in older specimens than in younger ones, varying from 2·7-1·3 in the orbital length.

This species was discovered by our friend, the late Harald C. Dannevig, who obtained it in considerable quantity in deep water in the Great Australian Bight, and considered it would later become an important addition to the fish supply of the Southern States.

P. conatus is very closely allied to *P. macrodon*, Ogilby, but is readily distinguished by its much shorter and thicker gill-rakers (plate xii., figs. 3 and 4); it usually has a narrower interorbital space and its fins are lighter in colour, while a less striking difference lies in the sculpture of the preopercular bone, portion of which is generally exposed and radially carinate in *P. conatus*, and smooth and covered by skin in *P. macrodon*. *P. conatus* is possibly identical with either *P. grandis*, Castelnau, or *P. speculator*, Klunzinger, but the descriptions of both these species lack all reference to several structures characteristic of our species; further, both were obtained from shallower water in the neighbourhood of Port Phillip, whereas we have no record of *P. conatus* except from deep water in the Great Australian Bight.

Loc.—Great Australian Bight, 80-120 fathoms; Great Australian Bight, south-west of Eucla, 130-320 fathoms; Investigator Strait, South Australia.

"Simplon" Stations 3, 4, and 7, 80-140 fathoms.

Family TRIGLIDAE.

PTERYGOTRIGLA, Waite, 1899.

PTERYGOTRIGLA POLYOMMATA, Richardson.

Trigla polyommata, Richardson: Proc. Zool. Soc., 1839, p. 96.

Hoplonotus polyommatus, Guichenot: Ann. Soc. Linn. Maine et Loire Ichth., ix., 1866.

Pterygotrigla polyommata, Waite: Mem. Aust. Mus., iv., 1899, p. 108.

Flying Gurnard.

Stations 3, 5, 6, and 8, 80-140 fathoms.

CHELIDONICHTHYS, Kaup, 1873.

CHELIDONICHTHYS KUMU, Lesson and Garnot.

Trigla kumu, Less. and Garn.: Voy. "Coquille" Poiss., 1826, p. 214, pl. xix.

Trigla spinosa, McClell.: Calc. Journ. Nat. Hist., iv., 18—, p. 396, pl. xxii., fig. 2.

Trigla pictipinnis, Kaup: Arch. für Naturg., 1873, p. 87.

Trigla kumu, var. *dorsomaculata*, Steindachner: Sitzb. Akad. Wien., lxxiv., 1876, p. 168.

Chelidonichthys kumu, Jordan and Evermann: Rep. U.S. Fish. Comm., 1896, p. 488, footnote.

Red Gurnard.

Station 4, 88-94 fathoms.

Family URANOSCOPIDAE.

KATHETOSTOMA, Günther, 1860.

KATHETOSTOMA NIGROFASCIATUM, n. sp.

Banded Stonelifter.

Pl. xiii., figs. 1 and 2; and *K. laeve*, fig. 3.

D. 14; A. 14; P. 19; V. i 5; C. 11.

Length of head from the chin to the opercular margin, 2·5-2·6, depth of body 3·8-3·9 in the length from the chin to the base of the caudal rays. Orbit 1·6-1·7 in the interorbital width. The greatest breadth is just behind the preopercle, where it is almost equal to the length of the head.

Head.—Cranial armature sculptured into rounded tubercles; its hinder margin interrupted by two more or less prominent backward projections, which are extensions of two indefinite ridges extending from behind the orbits. The naked cavity between the orbits is subquadrate, but varies in shape, its width being equal to its length in some specimens, and much narrower in others. Eyes superior, surrounded by raised rugose bones; the postero-exterior angle of the orbit forms an open hiatus, but the hinder internal portion is complete and rounded. Preorbital bone with several raised ridges, which project as obtuse spines on the margin. Lower border of the preopercle with three strong spines, the anterior of which is directed obliquely forward. Opercle unarmed, its surface with radiating, tubercular ridges. Mouth vertical, the lips with rows of short papillae. Maxilla subvertical, broad; its posterior angle below the middle of the eye when the mouth is closed.

A short spine projects forward from the lower portion of each ramus of the lower jaw. The skinny folds crossing the chin from the branchiostegals are densely fimbriate in older specimens, but less so in young examples.

Teeth.—Upper jaw with a band of villiform teeth on each side, separated by a short interspace at the symphysis. Lower jaw with a row of very large pointed teeth, and a short row of small ones in front of them on each side of the symphysis. A patch of small teeth is present on each side of the very wide vomer. Palatines toothless. Pharangeal teeth very large. Tongue, and a fold behind the mandibular teeth, densely papillose.

Body depressed anteriorly, compressed posteriorly; it is covered with smooth, naked skin. Lateral line consisting of minute pores arranged on each side of a slightly raised canal: each commences above the base of the humeral spine and converges towards its fellow as it extends backward; the two are very close together on the upper portion of the caudal peduncle, whence they suddenly dip towards the median caudal rays. Humeral spines well developed. Small pelvic spines project forward in front of the ventral fins.

Fins. The dorsal fin originates about the middle of the length: its rays increase in length to the middle, and then decrease again, leaving the margin rounded Anal commencing before and terminating behind the dorsal: its rays increase in length to the third last. Pectoral reaching backward to below the anterior fourth of the dorsal; the eighth upper ray is the longest, and the lower ones are somewhat thickened, with their tips free. Ventral inserted below the verticle of the eye: the spine is short and hidden in the skin, but the rays are thick and coarse, and increase in length to the fourth. Caudal slightly rounded.

Colour.—Pale grey above, with four broad blackish crossbars: the first crosses the hinder portion of the head, and is more or less interrupted; the second is between the pectoral fins; the third is below the dorsal fin; the fourth envelops the greater portion of the caudal. There is a narrow dark bar between the eyes, and three dark lines extend outwards from the orbits: the anterior runs forward on to the maxilla, the median on to the cheek, and the posterior backwards. Pectorals dusky, with broad whitish margins; dorsal and caudal blackish, with broad white borders.

Described from three specimens 157-220 mm. long. The largest is figured, and is selected as the type. It is deposited in the South Australian Museum.

This species is closely allied to *K. laeve*, Bloch and Schneider, but differs in the form and sculpture of the cranial armature, and in the arrangement of the colour-marking on the head.

Loc.—Doubtful Island Bay, South-western Australia, 20-25 fathoms.

"Simplon" Stations 3, 4, 6, and 7, 80-140 fathoms. Great Australian Bight.

Comparing *K. nigrofasciatum* with *K. laeve*,(2) the two species are seen to differ in the following characters:—In *K. laeve* the hinder margin of the cranial armature is nearly straight, whereas in our new species it is interrupted by two backward projections. The surface of the exposed bones is sculptured into reticulating ridges in *K. laeve*, and into tubercles in *K. nigrofasciatum*. The postero-internal portion of the orbit of *K. laeve* presents a small hiatus, while it is entire and rounded in the new species. The dark cross-bars are much darker in *K. nigrofasciatum* than in *K. laeve*, and are differently arranged on the head; in the latter the preopercle is largely covered by a dark area, and there are no dark marks radiating from the eye, while the opercle is without marking; in *K. nigrofasciatum* three black lines radiate from the eye, the preopercle is almost without marking, and the upper portion of the opercle is deep black.

K. giganteum, Haast.,(3) is readily distinguished from both *K. laeve* and *K. nigrofasciatum* by its colour-marking and by the granular sculpture of the cephalic armature. The three may be identified by the following key:—

a. Head and body with broad dark cross-bars; no white stripe along the lateral line.	
b. Three dark bars radiating from the eye; no large dark blotch on the preopercle	*nigrofasciatum*
bb. No bars radiating from the eye; a large dark blotch on the preopercle	*laeve*
aa. Head and body marbled, without cross-bars; a white stripe along the lateral line ..	*giganteum*

K. laeve is recorded from New South Wales, Victoria, and Tasmania. We have a specimen from 37 fathoms off the Investigator Group, South Australia

---

(2) *Uranoscopus laevis*, Bloch and Schneider: Syst. Ichth., 1801, p. 47, pl. viii.; Cuvier and Valenciennes: Hist. Nat. Poiss., iii., 1829, p. 319.

Kathetostoma laeve, Günther: Cat. Fish, Brit. Mus., ii., 1860, p. 231; Klunzinger: Arch. Naturg., xxxviii., 1872, p. 28, and Sitzb. Akad. Wiss. Wien., lxxx., 1879, p. 369; Castelnau: Proc. Zool. Soc., Vict., i., 1872, p. 91; Macleay: Proc. Linn. Soc., N.S.W., v., 1881, p. 562; Johnston: Proc. Roy. Soc., Tasm., 1882 (1883), p. 115, and 1890 (1891), p. 33; Waite: Mem. Aust. Mus., iv., 1899, p. 113.

(3) Haast: T.N.Z.I., v., 1873, p. 274, pl. xvi., fig. 2.

Family MONACANTHIDAE.

CANTHERINES, Swainson, 1839.

CANTHERINES AYRAUDI, Quoy and Gaimard.

Balistes ayraudi, Quoy and Gaim: Voy. "Uranie," Poiss., 1824, p. 216, pl. xlvii., fig. 2.

Aluteres velutinus, Jenyns: Voy. "Beagle," Fish., 1842, p. 157.

Monacanthus vittatus, Richardson: Voy. "Ereb. and Terr.," Fish., 1846, p. 66.

Monacanthus frauenfeldii, Kner: Voy. "Novara," Fische, 1867, p. 397.

Monacanthus ayraudi, Günther: Cat. Fish. Brit. Mus., viii., 1870, p. 244.

Pseudomonacanthus ayraudi, Waite: Mem. N.S.W. Nat. Club, ii., 1904, p. 56.

Chinaman Leather Jacket.

Stations 2, 3, 4, 5, and 6, 22-140 fathoms.

CANTHERINES HIPPOCREPIS, Quoy and Gaimard

Balistes hippocrepis, Quoy and Gaim.: Voy. "Uranie," Poiss., 1824, p. 212.

Aleuterius variabilis, Richardson: Voy. "Ereb. and Terr.," Fish., 1846, p. 67, pl. lii., figs. 1 to 7.

Monacanthus hippocrepis, Hollard: Ann. Sci. Nat., ii., 1854, p. 338.

Pseudomonacanthus hippocrepis, Waite: Mem. N.S.W. Nat. Club, ii., 1904, p. 56.

Variable Leather Jacket.

Station 5, 85 fathoms.

CANTHERINES MOSAICUS, Ramsay and Ogilby.

Monacanthus mosaicus, Rams. and Ogil.: Proc. Linn. Soc., N.S.W., xi., 1886, p. 5.

Cantherines mosaicus, McCulloch: "Endeavour" Sci. Res., iii., 1915, p. 170, pl. xxxvii., figs. 1 and 2.

Mosaic Leather Jacket.

Station 7, 85 fathoms.

CANTHERINES SETOSUS, Waite.

Monacanthus setosus, Waite: Mem. Aust. Mus., iv., 1899, p. 91, pl. xvi.

Velvet Leather Jacket.

Pl. xiv.

In well-preserved specimens of this species the scales are papilliform and not setiform. Each consists of several curved, upstanding spinules, which are surmounted by rounded fleshy papillae (fig. 3), but these latter are entirely lost by shrinkage in old spirit specimens (fig. 2); the spinules are usually

arranged in short, subvertical rows of two to four on the sides of the head and body, but the rows are oblique and longer on the ventral expansion.

The colour is light-green, with darker cloudy markings disposed over the body and across the throat: these are more distinct in the young than in older specimens, and are usually lost in preservation. The dorsal and anal fins are plain yellow, but the caudal usually bears a blackish curved band on its posterior portion.

C. setosus is very similar to *C. granulatus*, Shaw, but differs in the armature of the dorsal spine, structure of the scales, and number of dorsal and anal rays. The anterior rows of spinules on the dorsal spine are very small in young specimens (fig. 4), and quite obsolete in adults (fig. 5); the scales each consist of several curved spinules instead of a single truncate one, and the dorsal and anal rays number 33-35 and 31-36 respectively.

It is, of course, well known that some fishes when drawn from deep water have their organs more or less displaced owing to diminution of pressure when at the surface; this is especially noticeable in those forms which possess an unyielding body. Nearly all the Ostracions, for example, were affected in this manner, their eyes being forced far out of the sockets, and the intestines, etc., driven through the mouth or vent. Softer-bodied fishes suffer a more general distension, and the eyes appear to be the first organs to be seriously affected. The photograph of *Cantherines setosus* here reproduced (pl. xiv., fig. 6) well exhibits the appearance presented by the bulging eyes, and it may be added that, owing to the tenseness of the membranes, it was impossible to restore them to their sockets by pressure of thumb and fingers.

Loc.—This species occurs in moderately deep water off the southern portion of the coast of New South Wales, Victoria, Tasmania, and South Australia. A number of specimens were taken between Port Hacking and Wollongong, New South Wales, in 50-70 fathoms. Six others are preserved from east of Babel Island, Bass Strait, in 40-100 fathoms, and off the Investigator Group, South Australia, 37 fathoms.

"Simplon" Station 2, 22 fathoms, and Station 8, 72 fathoms.

NOTE ON CANTHERINES GRANULATUS, Shaw.

Balistes granulata, Shaw: in White, Voy. N.S. Wales, 1790, p. 295, pl. —.

Monacanthus granulatus, Richardson; Voy. "Ereb. and Terr.," Fishes, 1846, p. 63, pl. xl., figs. 1 and 2; Steindachner: Sitzb. Akad. Wiss. Wein., liii., 1866, p. 476; Castelnau: Proc. Linn. Soc., N.S.W., iii., 1879, p. 398; Macleay: Proc. Linn., Soc., N.S.W., vi., 1881, p. 324.

Monacanthus granulosus, Günther: Cat. Fish. Brit. Mus., viii., 1870, p. 243; Klunzinger: Arch. Nat., xxxviii., 1872, p. 43, and Sitzb. Akad. Wiss. Wien., liii., 1879, p. 421.

Monacanthus perulifer, Castelnau: Proc. Zool. Soc., Vict., i., 1872, p. 245.

Monacanthus margaritifer, Castelnau: Proc. Zool. Soc., Vict., ii., 1873, p. 80, substitute for *perulifer*; *id.*: Proc. Linn. Soc., N.S.W., ii., 1878, p. 247; Macleay: Proc. Linn. Soc., N.S.W., vi., 1881, p. 320.

Monacanthus brunneus, Castelnau: Proc. Zool. Soc., Vict., ii., 1873, p. 145 (preoccupied).

Monacanthus obscurus, Castelnau: Res. Fish. Aust. (Vict. Offic. Rec. Philad. Exhib.), 1875, p. 51, substitute for *brunneus*; *id.*: Proc. Linn. Soc., N.S.W., iii., 1879, p. 357.

Monacanthus damelii, Günther: Ann. Mag. Nat. Hist. (4), xvii., 1876, p. 402, substitute for *brunneus*.

Monacanthus santi-joanni, Castelnau: Proc. Linn. Soc., N.S.W., ii., 1878, p. 246; Macleay: Proc. Linn. Soc., N.S.W., vi., 1881, p. 321.

Pseudomonacanthus granulatus, Waite: Rec. Aust. Mus., vi., 1905, p. 80, and *loc. cit.*, vi., 1906, p. 210.

According to Günther's description of *C. granulatus*, the dorsal spine has no barbs in front, though they are clearly shown in Richardson's figure, and are present in all the specimens examined. Günther's error has led to considerable confusion, and the species has received several names in consequence. The accompanying synonymy, which appears to be correct, has already been suggested by Castelnau and Klunzinger in their various papers quoted.

Günther has very doubtfully included *Balistes papillosus*, Linnaeus,⁽⁴⁾ in the synonymy of *C. granulatus*. That species is described as having 29 dorsal and 21 anal rays, whereas we find 28-30 dorsal and 26-29 anal rays in 10 specimens; this, together with the fact that the locality of *B. papillosus* was unknown, leaves nothing to justify its association with *C. granulatus*.

Loc.—Twenty specimens, 66-207 mm. long, are in the Australian Museum collection from Port Jackson, New South Wales, and Fremantle, Western Australia.

Family OSTRACIIDAE.

For particulars of the species of this family see the following paper, page 477 *et. seq.*

Capropygia unistriata, Kaup.

Station 2, 22 fathoms; Station 3, 80-140 fathoms; Station 5, 85 fathoms; Station 6, 85 fathoms; and Station 8, 72 fathoms.

Anoplocapros gibbosus, n. sp.

Station 4, 88-94 fathoms.

---

(4) Linnaeus, Syst. Nat., ed. 10, 1758, p. 328.

ARACANA AURITA, Shaw.

Station 2, 22 fathoms, and Station 5, 85 fathoms.

ARACANA SPILOGASTER, Richardson, var. **ANGUSTA**, n. var

Station 3, 80-140 fathoms.

Family TETRAODONTIDAE.

TETRAODON, Linnaeus, 1758.

TETRAODON ARMILLA, n. sp.

Pl. xv.

D. 11-12; A. 9-11; P. 21; C. 9+2.

Head, measured from the upper lip to the gill-opening. 2·6-2·9 in the length without the caudal fin. Snout, from the upper lip to the eye, 1·6-1·7 in the head. Eye 2·4-3·5 in the snout and 4·2-5·6 in the head Longest dorsal rays, 2·7-2·9, anal 3-3·2, and caudal fin 1·2-1·4 in the head.

Head.—Snout subconical, without any chin. Nostrils absent, represented by a small simple tentacle on each side. Eye much nearer the gill-opening than the mouth and close to the upper profile of the head The anterior angle of the orbit projecting slightly above the general contour; upper and lower eyelids adnate to the ocular membrane. Margin of the gill-opening without lobules The inner flap usually concealed.

Body.—The skin of the back is usually smooth, sometimes slightly plicate like that of the abdomen. It is closely beset with minute spinules, which extend from the middle of the snout backward to the caudal peduncle on the upper-surface and sides, and cover the whole abdominal surface below; these spinules cannot always be traced in formalin specimens, being hidden in the skin, but they are quite distinct in examples preserved in alcohol. No fold along the lower portion of the sides.

Fins.—Dorsal and anal fins rounded, and variable in size; they are generally short and narrow as figured, but may be longer and broader. Pectorals more or less bilobed, the median rays being shorter than those above or below them. Caudal fin much larger in the young than in adults, its margin more or less rounded.

Colour.—Upper-surface of snout, back, and tail grey or brown, this colour descending on to the lighter sides behind the pectoral fins. A broad, oblique, dark band from the eye to the lower-surface of the snout, leaving the lips white. A large black curved band encircles the gill-opening and pectoral fin, the enclosed area being darker than the surrounding parts. Lower portion of the caudal fin blackish, the remaining fins without markings. These markings vary in their intensity, and are much more distinct in small examples than in larger ones.

Described from 12 specimens, 103-211 mm. long. The specimen figured is 200 mm. long, and is selected as the type; it is deposited in the South Australian Museum.

Loc.—Off Flinders Island, Bass Strait, 40 fathoms; Marsden Point, Kangaroo Island; nine to ten miles west of Glenelg jetty, Gulf St. Vincent, 10-12 fathoms; off St. Francis Island, Investigator Group, South Australia, 30 fathoms; off Flinders Island, Investigator Group, South Australia, 37 fathoms; Doubtful Island Bay, South-western Australia, 20-25 fathoms.

"Simplon" Stations 2, 3, 4, 6, and 7, 22-140 fathoms, Great Australian Bight.

Family DIODONTIDAE.

ATOPOMYCTERUS, Bleeker.

ATOPOMYCTERUS NICTHEMERUS, Cuvier.

Diodon nicthemerus, Cuvier: Mem. Mus., 1818, p. 135, pl. iv.

Atopomycterus nychthemerus, Günther: Cat. Fish. Brit. Mus., viii., 1870, p. 315.

Station 3, 80-140 fathoms.

EXPLANATION OF PLATES.

PLATE XII.

Fig. 1. *Platycephalus (Neoplatycephalus) conatus*, n. sp. Type, 300 mm. long, Great Australian Bight, 80-120 fathoms.
,, 2. Head of type.
,, 3. Gill-rakers of first gill-arch of type.
,, 4. Gill-rakers of first gill-arch of *N. macrodon*, Ogil.
,, 5. Teeth of *N. conatus*. Type.

PLATE XIII.

Fig. 1. *Kathetostoma nigrofasciatum*, n. sp. Type, 220 mm. long, Great Australian Bight, South Australia.
,, 2. Side view of same specimen as fig. 1.
,, 3. *Kathetostoma laeve*, Bl. Schn. Head of a specimen, 226 mm. long, New South Wales.

PLATE XIV.

Fig. 1. *Cantherines setosus*, Waite. A specimen 196 mm. long, between Port Hacking and Wollongong, 50-70 fathoms.
,, 2. Scales of type.
,, 3. Scales of a well-preserved formalin specimen.
,, 4. Dorsal spine of a young specimen.
,, 5. Dorsal spine of an older specimen.
,, 6. Portion of specimen from 72 fathoms, Great Australian Bight, illustrating the effect of reduction of pressure on the eyes.

PLATE XV.

Tetraodon armilla, n. sp. Type, 200 mm. long, Great Australian Bight.

A REVISION OF THE GENUS ARACANA AND ITS ALLIES.

By ALLAN R. MCCULLOCH, Zoologist, Australian Museum,
and
EDGAR R. WAITE, Director, South Australian Museum.

[Contribution from the Australian and South Australian Museums.]

[Read October 14, 1915.]

PLATES XVI. TO XXV.

The paper results, primarily, from an examination of the fishes obtained during the cruise of the trawler "Simplon" in the Great Australian Bight, and of which a more general account appears in the preceding pages (pp. 455 to 476). The *Aracanae* in the Australian and South Australian Museums have also been examined, and others obtained by the collectors of the ill-fated Federal trawler "Endeavour" have likewise been reviewed.

In all ninety-three specimens have been examined, which prove the several species to be exceedingly variable in form and colour-marking, in the development of the spines on the carapace, and in the ornamentation of the scutes. We recognize five genera, of which one is new; the others were defined by Kaup in 1855, but were later united with *Aracana*, Gray, by Günther, which genus he further regarded as a subgenus of *Ostracion*, Linnaeus. The species of the genera *Capropygia*, *Caprichthys*, *Kentrocapros*, and *Anoplocapros* are easily separated, but those of *Aracana* are not so readily determined.

Key to the genera allied to *Aracana*.

a. Back elevated into a ridge.
  b. Tail encircled by a bony band, which may be incomplete in the young. No supraorbital spine.
    c. Each lateral ridge of carapace with a single, large, straight spine, which is broad and flat ... . *Capropygia*
    cc. Lateral ridges without, or with several small spines ... ... *Anoplocapros*
  bb. Tail not encircled by a bony band. Each lateral ridge with a single recurved spine, which is broad and flat. Supraorbital spine present or absent ... ... *Caprichthys*

aa. Back broad and flattened.
  d. Two supralateral spines on each side. Supraorbital spine present. Abdomen keeled ... . *Aracana*
  dd. One supralateral spine on each side. Supraorbital spine feebly developed. Abdomen scarcely keeled ... ... *Kentrocapros*

CAPROPYGIA, Kaup.

Capropygia, Kaup : Arch. für Naturg., xxi., 1855, p. 220 (*Acerana unistriata*, Kaup).

Carapace with six ridges—a dorsal, an abdominal, two supralateral, and two infralateral. Each lateral ridge with a single large spine, which is broad and flat; no supraorbital spine. Caudal peduncle with a complete ring of scutes posteriorly. Dorsal with 12-14, anal with 12-13 rays.

CAPROPYGIA UNISTRIATA (Gray), Kaup.

Pl. xvi.

Acerana (Capropygia) unistriata (Gray, MS.), Kaup: Arch. für Naturg., xxi., 1855, p. 220; Günther: Cat. Fish. Brit. Mus., viii., 1870, p. 266.

D. 12-14; A 12-13; P. 1 + 11; C. 10-11.

Length of head, from the rostral end of the carapace to the gill-opening, 3·5-3·6, depth of body 1·1-1·3 in the length exclusive of the caudal rays. Narrowest interorbital width scarcely greater than the orbital diameter, which is 1·3 in the snout; snout, measured from the rostral end of the carapace to the anterior orbital margin, 1·3-1·4 in the head. Longest pectoral ray 1·07, dorsal 1·3, anal 1·6, and caudal 1·3 in the head.

Back and belly each with a compressed keel; lateral edges elevated above the general surface of the carapace. Snout but little produced, not compressed. Forehead flat between the eyes, the supraorbital margins more or less elevated, and unarmed. Supralateral spine in the posterior portion of the median third of the carapace; it is flattened, with a broad base, and is directed outward and upward. Infralateral spine similar but smaller, inserted below the origin of the dorsal fin, and directed outward, downward, and backward. Gill-opening below the hinder portion of the eye; pectoral usually entirely behind the verticle of the eye, its anterior portion sometimes below the hinder orbital margin.

Scutes of the carapace in close contact everywhere except before the gill-opening, where they are slightly separated. Their surfaces are rougher on the head than on the body, and those on the throat are tubercular. Three or four scutes are present behind the dorsal and anal fins, and there is a more or less complete ring of scutes around the end of the caudal peduncle.

Life Colours.—Ground pale-yellow, with black spots and bars distributed as follows:—Bases of the dorsal and anal fins each with a large black spot, which may be divided into two; caudal peduncle with two spots, one behind the caudal ring, and another larger one in front of it; base of pectoral more or less completely black, as is the fleshy area behind the lips and the nostrils; a black band from below and behind the eye to the hinder part of the carapace is usually present, but may be incomplete or absent, a broad black ring around each of the body spines.

Described from eight specimens, 72-106 mm. long; the specimen figured is 90 mm. in length.

Loc.—Off the mouth of the Murray River, South Australia, 20 fathoms; 40 miles west of Kingston, South Australia, 30 fathoms; Spencer Gulf, South Australia, 20 fathoms, off Flinders Island, Investigator Group, South Australia, 37 fathoms; Rocky Point, Eastern Cove, Kangaroo Island.

(1) "Simplon" Station 2, 22 fathoms; Station 3, 80-140 fathoms; Station 5, 85 fathoms; Station 6, 85 fathoms; Station 8, 72 fathoms.

ANOPLOCAPROS, Kaup.

Anoplocapros, Kaup.: Arch. für Naturg., xxi., 1855, p. 220 (*Ostracion lenticularis*, Richardson).

Carapace compressed, the back elevated into a ridge; there are six ridges in the young, but the lateral ones usually become obsolete in adults, while the abdominal ridge is not always well defined. Young generally with several small spines on the lateral ridges, which are usually wanting in adults; no supraorbital spine. Tail encircled by a band of osseus scutes, which may be incomplete in the young. Dorsal and anal fins each with about ten rays.

Key to the species of *Anoplocapros*.

a Occiput not gibbous before the dorsal crest .. *lenticularis*
aa. Occiput gibbous before the dorsal crest .. *gibbosus*

ANOPLOCAPROS LENTICULARIS, Richardson.

Pl. xvii.

Ostracion lenticularis, Richardson: Proc. Zool. Soc., 1841, p. 21, and Trans. Zool. Soc., iii., 1849, p. 158.

Acerana (Anoplocapros) lenticularis, Kaup: Arch. für Naturg., xxi., 1855, p. 221.

Acerana (Anoplocapros) grayi, Kaup: *loc. cit.*

---

(1) For further details of "Simplon" Stations see pp. 457 and 458 of previous paper.

Ostracion (Aracana) lenticularis, Günther: Cat. Fish. Brit. Mus., viii., 1870, p. 268; Macleay: Proc. Linn. Soc., N.S.W., vi., 1881, p. 335.

Aracana lenticularis, Castelnau: Proc. Zool. Soc., Vict., ii., 1873, p. 148, and Proc. Linn. Soc., N.S.W., iii., 1879, p. 401; Waite: Mem. Austr. Mus., iv., 1899, p. 95, pl. xvii., fig. 2, and pl. xviii., and Rec. Austr. Mus., iv., 1902, p. 190, and *loc. cit.*, vi., 1905, p. 82.

A representative series of twenty-nine specimens, 102-300 mm. long, shows that this species varies in form to an extraordinary degree, some of the variations being due to the regular changes with growth, while others are merely individual peculiarities.

In the young, the supralateral and infralateral ridges of the carapace are well defined, and sometimes armed with short thick spines; both ridges and spines usually become obsolete in adults, but are sometimes retained. Small specimens have the scutes very rugose with widely-spaced granules, and elevated ridges radiating from central tubercles; these ridges become more or less reduced with age, and some large specimens have the carapace uniformly and minutely granular. The snout is always oblique in the young, and rarely also in adults, but larger specimens generally develop a more or less prominent hump on the snout which may make its anterior profile almost vertical. The carapace is usually compressed, and the back and abdomen form sharp crests; some specimens, however, are much thicker, and the dorsal crest is obtuse, while that of the abdomen is almost obsolete. The depth varies greatly, and in two specimens, 183 and 226 mm. long, respectively, the greatest depth is 1·4-2 in the length, exclusive of the caudal fin.

The young and adult forms of this species have been described in detail and illustrated by Waite. The specimen here figured is a particularly slender example, and is evidently of the form which was briefly described by Kaup as *A. grayi*.

Loc.—Port Jackson, and near Sydney, New South Wales; Shoalhaven Bight, New South Wales, 19-20 fathoms ("Thetis" expedition); off Cape Three Points, New South Wales, 23-34 fathoms ("Thetis" expedition); South Australia; Fremantle and Mandurah, Western Australia.

ANOPLOCAPROS GIBBOSUS, n. sp.

Pl. xviii.

D. 9-11; A. 10; P. 1+11; C. 11.

Length of head 3·2, depth of body 1·4-1·6 in the length without the caudal rays. Snout 1·2-1·3, orbit 3·2-3·3, and narrowest interorbital width about 2 in the head. Longest pectoral ray 1·6-1·7, dorsal 1·7-2·1, anal 2·1-2·5, and caudal 1·7-1·8 in the head.

Form of the body variable. Snout somewhat produced and compressed. Interorbital space concave or flattened, the supraorbital margins somewhat elevated. The back rises more or less abruptly from the interorbital space, generally forming a broad occipital hump; thence it narrows, becoming compressed into a keel on its upper and hinder portions, which is higher in some specimens than in others. Abdominal profile either flattened below and more or less compressed, or evenly arched and broader. Lateral ridges obsolete, no true spines on the carapace. Gill-opening behind or below the posterior orbital margin; pectoral entirely behind the eye.

Scutes of the carapace in close contact everywhere except in advance of the gill-opening, where they are more or less separated by naked interspaces. On the head they are ornamented with close-set rounded granules. The body-scutes are also beset with similar granules, and their centres are elevated to form obtuse or spiniform tubercles on the lower portions of the sides; these tubercles are well developed and widely distributed in some specimens, but are obsolete in others. A broad saddle-shaped scute is present behind the dorsal, and another behind the anal fin, and there may be others irregularly placed between them; a complete ring of scutes extends around the caudal peduncle.

Life Colours.—Ground colour yellow, tinged with pink, with two dark-greyish areas on the back, which are bordered with indefinite dark wavy lines; the anterior extends from the occiput to the back, while the other covers its posterolateral portion, and extends forward toward the eye.

Described from four specimens, 177-250 mm. long. The largest is selected as the type, and is the example figured.

Two young specimens, about 80 and 124 mm. long, respectively, differ from the larger ones in their great depth and in the pronounced sculpture of the scutes of the carapace, while their colour-marking is greatly accentuated. The greatest depth is 1·2 in the length, exclusive of the caudal fin, the dorsal ridge being very high. Prominent, elevated, granular ridges radiate from the centre of each scute to its angles, and the spaces between them are covered with spaced granules; a few irregular granular nodules are situated on the ridges on one side of one of the specimens, but are absent on the other side. The arrangement of the colour-marking is similar to that shown in the figure, but the dark areas are defined by conspicuous dark-brown lines.

Loc.—Marsden Point, Kangaroo Island; Flinders Island, Investigator Group, South Australia, 37 fathoms; Corney Point, Spencer Gulf, South Australia.

"Simplon" Station 4, 88-94 fathoms.

CAPRICHTHYS, n. gen.

This genus is allied to *Aracana*, but differs in having the back elevated into a ridge instead of being broad and flattened. It is distinguished from *Capropygia* and *Anoplocapros* by having the caudal peduncle naked posteriorly instead of encircled with a bony band. Carapace with six ridges—a dorsal, an abdominal, two supralateral, and two infralateral. Each lateral ridge with a single recurved spine, which is broad and flat; a supraorbital spine present or absent.

CAPRICHTHYS GYMNURA, n. sp.

Pl. xix.

D. 12-13; A. 12; P. 1+11; C. 10-11.

Length of head, from the rostral end of the carapace to the gill-opening, 3·3-3·5, depth of body 1·2 in the length without the caudal rays. Narrowest interorbital width subequal to the diameter of the orbit, which is 1·4-1·7 in the snout; snout, measured from the rostral end of the carapace to the anterior orbital margin, 1·2-1·3 in the head. Longest pectoral ray 1·1, dorsal 1·4-1·5, anal 1·4-1·6, and caudal 1·3-1·4 in the head.

Back and belly each with a compressed keel; the lateral edges less pronounced though well defined. Snout somewhat produced, a little compressed. Forehead flat between the eyes, the orbital margins elevated; the younger specimens have a flattened curved spine over each eye, directed upward, outward, and backward, but the orbits are spineless in the largest example. Spine of supralateral ridge in the anterior portion of the hinder third of the carapace; it is flattened, curved, and striated, and directed outward, upward, and backward. Infralateral spine similar, inserted behind the verticle of the upper one, and directed outward, downward, and backward. Gill-opening below or in advance of the verticle of the hinder orbital margin; the pectoral may be wholly behind the eye, or the anterior portion of its base may be placed below the posterior portion of the eye.

Scutes of the carapace in close contact in the young, but irregularly separated on the abdomen by naked areas in the larger example, which has also a few free scutes around the bases of the dorsal and anal fins; those before the gill-opening are more or less separated in all specimens. The scutes are much rougher on the head than on the body, especially around the lips and on the throat, where they become tubercular; the body-scutes are ornamented with rows of granules radiating from a central point. About three distinct scutes are present behind the dorsal and anal fins; caudal peduncle otherwise naked.

Colour.—Creamy-white in formaline, with more or less numerous blackish spots and lines distributed as follows:—Naked parts with a varying number of narrow black lines; some large black spots on and around the bases of the body-spines, which become smaller as they recede from them; the greater part of the back is also spotted in one example.

Described from four specimens, 86-113 mm. long. The example figured is 100 mm. in length, and is selected as the type.

Loc.—Doubtful Island Bay, South-western Australia, 20-25 fathoms; between Cape Naturaliste and Geraldton, Western Australia.

ARACANA, Gray.

Ostracion, subgenus *Aracana*, Gray: Ann. Mag. Nat. Hist., i., 1838, p. 110; Günther: Cat. Fish. Brit. Mus., viii., 1870, p. 266.

Platycanthus, Swainson: Nat. Hist. Classif. Fishes, ii., 1839, pp. 194, 324 *(P. auratus*, Shaw).

Acerana, Kaup.: Arch. für Naturg., xxi., 1855, p. 219 (misprint).

Carapace with five more or less distinct ridges—two supralateral, two infralateral, and an abdominal. A supraorbital and two supralateral spines on each side; a mediolateral, and one to four infralateral spines are more or less developed, Caudal peduncle with broad saddle-shaped scutes, which may form an osseous ring around the base of the tail. Dorsal with 9-11, anal with 10-11 rays.

Type.—According to Günther *(loc. cit.*, p. 267), the name *Aracana* was first used by Gray in his "Illustrations of Indian Zoology," published about 1829, for a fish which he figured as *A. aurita*, Richardson. He later considered that his figure represented a distinct species, which he called *A. reevesii*, and which must therefore be accepted as the type of the genus. Unfortunately Gray's figure is not available to us, so we rely upon Günther in the above statement.

The species of *Aracana* are subject to considerable variation in form, development of the spines, ornamentation of the scutes, and colour-markings. We have examined a series of twenty-five specimens of different sizes from various localities, and find them to be separable into several groups; but which of these groups represent species, subspecies, sexual forms, or merely varieties we are unable to say. Kent ⁽²⁾ has described and roughly figured two very differently-marked specimens as *A. ornata* and *A. aurita*, which he regards as sexual forms of the one species. His figures are very crude, and do not quite agree with any specimens in our series, and as he offers no proof of his contention, we suggest that the two names be retained until further information is available.

Key to the species of *Aracana*.

a. Supraorbital spines inclined more or less backward.
  b. Caudal not ornate ... ... *aurita*
  bb. Caudal ornate ... ... *spilogaster*
    c. Body subcircular, more than half as deep as long.
      d. One mediolateral, two infralateral spines ... ... typical form
      dd. Two mediolateral, four infralateral spines ... ... var. *spinosissima*
    cc. Body ovate, less than half as deep as long ... ... var. *angusta*
aa. Supraorbital spines inclined upward and slightly forward.
  e. Dark bars on caudal peduncle paired, much broader than the light interspaces. Snout subvertical in adults, oblique in the young.
    f. Sides of carapace with numerous polygonal spots; caudal fin ornate ... ... *ornata*
    ff. Sides of carapace with broad bars, not spots; caudal fin plain ... ... *ornata*, var.
  ee. Dark bars of caudal peduncle not paired, usually narrower than the light interspaces; snout oblique; caudal fin plain *flavigaster*

ARACANA AURITA, Shaw.

Pl. xx.

Ostracion auritus, Shaw: Nat. Miscel., ix., 1798, pl. cccxxxviii., and Gen. Zool., v., pt. 2, 1804, p. 429, pl. clxxiii.; Bloch and Schneider: Syst. Ichth., 1801, p. 561.

Ostracion (Aracana) auritus, Gray: Illustr. Ind. Zool., 1829(?), pl. xcviii., fig. 2; Gray: Ann. Mag. Nat. Hist., i., 1838, p. 110; Richardson: Trans. Zool. Soc., iii., 1849, p. 160, pl. ix., figs. 1 and 2; Bleeker: Verh. Akad. Amstrdm., ii., 1855, p. 26; Günther: Cat. Fish. Brit. Mus., viii., 1870, p. 266; Macleay: Proc. Linn. Soc., N.S.W., vi., 1881, p. 334; Johnston: Proc. Roy. Soc., Tasm., 1882 (1883), p. 136, and 1890 (1891), p. 38; Lucas: Proc. Roy. Soc., Vict. (2), ii., 1890, p. 41.

Aracana aurita, Klunzinger: Arch. für Naturg., xxxviii., 1872, p. 43, and Sitzb. Akad. Wiss. Wien., lxxx., 1879, p. 424; Castelnau: Proc. Zool. Soc., Vict., ii., 1873, p. 147; Hutton:

⁽²⁾ Kent: "Naturalist in Australia," 1897, p. 187, chromo pl. vii., figs. *a-c*.

Trans. N. Zeal. Inst., v., 1873, p. 271; Waite: Rec. Austr. Mus., vi., 1905, p. 82; Fowler: Proc. Acad. Nat. Sci. Philad., 1907 (1908), p. 439.

Acerana aurita, Kaup: Arch. für Naturg., xxi., 1855, p. 219.

Ostracion quatuordecim aculeatus, Lacépède: Ann. Mus. Hist. Nat., iv., 1804, pp. 202, 211, pl. lviii., fig. 1.

Ostracion striatus, Shaw: Gen. Zool., v., pt. 2, 1804, p. 430.(3)

Ostracion tobinii, Donovan: Nat. Repos., ii., 1824, pl. lxvi.(4)

Ostracion (Aracana) lineatus, Gray: Ann. Mag. Nat. Hist., i., 1838, p. 110.

Ostracion (Aracana) reevesii, Gray: Ann. Mag. Nat. Hist., i., 1838, p. 111.(5)

D. 10-11; A. 10-11; P. 1+10-11; C. 11-12.

Length of head 3·4-3·5, depth 1·3-1·7 in the length excluding the caudal rays. Narrowest interorbital width 2·3-2·4 in the head, and greater than the orbital diameter, which is 2·7-3·3 in the head. Longest pectoral ray 1·5-1·7, dorsal 1·4-1·6, anal 1·7-1·8, and median caudal rays 1·5 in the head.

Form very variable, principally owing to the different development of the abdomen; in the large specimen, figured on pl. xx., it is strongly compressed, and forms a deep rounded keel, but in a narrower example the keel is scarcely developed. Snout oblique, not gibbous. Interorbital space flat mesially, but the supraorbital margins are strongly elevated, making it appear concave. Back almost flat in front, sometimes forming a low crest behind. Gill-opening just behind the verticle of the eye in the young, farther back in adults. Spines variable in form, being either short and somewhat thickened, or elongate and strongly compressed. Supraorbital spine inclined slightly outward and backward. Two supralateral spines on each side. Mediolateral spine situated below or slightly behind the verticle of the hinder supralateral one. Two infralateral spines usually present, but one or both are occasionally absent: the anterior is below the interspace of the supralateral spines and far behind the pectoral base.(6)

---

(3) *Ostracion striatus*, Shaw. This name was founded on a drawing, which Shaw himself considered possibly represented his *O. auritus*.

(4) *Ostracion tobinii*, Donovan. This name was offered as a substitute for *O. auritus* and *O. striatus*, Shaw, which were regarded as unsatisfactory.

(5) *Ostracion (Aracana) reevesii*, Gray, was proposed for a fish figured in Gray's "Illustrations of Indian Zoology" as *A. aurita*, but later regarded as a distinct species. It was reunited with *A. aurita* by Günther.

Carapace uniformly granular in most larger specimens, but in some, including all smaller examples, the scutes are ornamented with radiating lines of larger granules. The scutes are widely separated in front of the gill-opening, and sometimes also on the abdomen near the vent. One or two large saddle-shaped scutes are present behind the dorsal and anal fins, and others form a more or less complete ring around the caudal peduncle. Dorsal and anal fins either somewhat angular or rounded; caudal slightly emarginate, truncate, or rounded.

Colour.—Creamy-yellow in formalin, with a varying number of dark lines which are more or less sinuous, and anastomosing on the supero-posterior portions of the sides; they are almost horizontal on the sides of the snout, and are nowhere wider than the lighter interspaces. Bases of the fins with oblique dark bars, their rayed portions plain.

Described from eleven specimens, 77-205 mm. long; the proportional measurements are those of the narrowest and broadest specimens, one of the latter being figured.

Loc.—Tasmania; off the east coast of Flinders Island, Bass Strait; 40 miles west of Kingston, South Australia, 30 fathoms; off the mouth of the Murray River, South Australia, 20 fathoms; Gulf St. Vincent, South Australia; Fremantle, Western Australia.

"Simplon" Station 2, 22 fathoms, and Station 5, 85 fathoms.

ARACANA AURITA, Shaw, (?) young.

Pl. xxi.

Fourteen young examples, 22-47 mm. long, resemble *A. aurita* in their general colour-marking. The smallest specimens, one of which is figured on pl. xxi., are almost globular, with the sides a little compressed; the back and abdomen are rounded. The scutes are very distinct and irregular; the centre of each is elevated into a rounded tubercle, from which raised ridges radiate towards the centres of each adjoining scute, and fine radiating striae cover the entire surface. No spines are developed, but their positions are indicated by enlarged tubercles. The eye is very large, and the nostrils are prominent and tubular. The fins are similar to those of larger specimens, but their rays are either simple or bifurcate.

---

(6) None of our specimens has a third infralateral spine below or in advance of the pectoral fin, and they agree with Shaw's description and figure in this respect. Richardson figures two specimens as *A. aurita*, in which, however, these spines are present; as his illustrations seem to agree with Shaw's species in other details, it is probable that the presence or absence of these spines is not of specific value. *Ostracion quatuordecim aculeatus*, Lacépède, also has subpectoral spines.

As the fish grows the striations on the scutes become less pronounced, and give way to scattered granules. The enlarged tubercles become more spiniform, and the general form and proportions alter to those of the adult. The dark stripes on the carapace and tail are few in number and widely spaced in the smallest specimens, but in others 47 mm. long, they do not differ from those of the adult *A. aurita.*

Loc.—Gulf St. Vincent, South Australia; Western Port, Victoria.

ARACANA SPILOGASTER, Richardson.

Ostracion (Aracana) spilogaster, Richardson: Proc. Zool. Soc., 1840, p. 27, and Trans. Zool. Soc., iii., 1849, p. 163, pl. x., fig. 1; Bleeker: Verh. Akad. Amstrdm., ii., 1855, p. 27.

D. 10-11; A. 10-11; P. 1+10; C. 11.

Length of head 3·3, depth of body 1·5-1·7 in the length without the caudal fin. Narrowest interorbital width 2·2-2·4 in the head, almost equal to the orbital diameter, which is 2·4 in the head. Longest pectoral ray 1·5, dorsal 1·5, and median caudal rays 1·3 in the head.

Snout oblique. Interorbital space flat, but the supraorbital ridges are elevated, making it appear concave. Back almost flat anteriorly, sometimes obscurely keeled posteriorly. Gill-opening behind the verticle of the hinder orbital margin. Supraorbital spine inclined backward, and more or less outward. Two supralateral spines on each side; a mediolateral spine is placed below or a little in advance of the verticle of the posterior supralateral one. Two infralateral spines, which are sometimes but little developed; the anterior is below the interspace of the supralaterals, and well behind the base of the pectoral fin.

Carapace covered with small rounded granules, which are usually more numerous on the lighter parts than on the dark (blue) lines and spots; this character is particularly marked on the sides of the snout. A large saddle-shaped scute is present behind the dorsal and anal fins, and others form a more or less complete ring around the base of the tail; numerous irregular smaller scutes are scattered over the sides of the caudal peduncle.

Colour.—Carapace and tail with numerous broad and more or less sinuous light-blue stripes, which are generally broken up into rounded spots on the sides; abdomen with a network of blue lines enclosing golden spots. Caudal fin ornate, with broad blue bars between the rays, which are united with an intramarginal loop of the same colour.

Described from eight specimens, 143-200 mm. long.

Loc.—Tasmania; Gulf St. Vincent, South Australia.

ARACANA SPILOGASTER, Richardson.

var. SPINOSISSIMA, n. var.

Pl. xxii.

An example, 160 mm. long, differs from the typical form of *A. spilogaster* only in the excessive development of the spines of the carapace. There are two mediolateral spines on each side, though the posterior one of the left side is only rudimentary. The infralateral ridges are armed with four spines; in addition to the normal two, there is one below the gill-opening and another smaller one below the hinder portion of the pectoral fin.

We have no doubt that this is merely a variation of *A. spilogaster*.

Loc.—Tasmania.

ARACANA SPILOGASTER, Richardson.

var. ANGUSTA, n. var.

Pl. xxiii.

D. 10; A. 10; P. 1+10-11; C. 11.

Length of head, from the snout to the gill-opening, 3·4, depth of body 1·7 in the length without the caudal fin. Narrowest interorbital width almost equal to the orbital diameter, which is 2·7 in the head. Longest pectoral ray 1·4, dorsal 1·3, anal 1·5, and caudal fin 1·1 in the head.

Snout oblique, slightly convex. Interorbital space flat, but the supraorbital margins are considerably elevated, making it appear concave. Back broad, almost flat. Abdomen compressed into a keel, its profile evenly arched from the snout to the caudal peduncle. Supraorbital spine well developed, inclined strongly backward and outward. Two supralateral spines on each side, and a strong mediolateral one situated slightly in advance of the verticle of the posterior supralateral one. Three infralateral spines; the anterior is the smallest and is placed below the anterior base of the pectoral, and the second is a little behind the verticle of the anterior supralateral spine.

Carapace uniformly granular except around the gill-opening, whence there is a naked space extending forward to the snout. Saddle-shaped scutes are present behind the dorsal and anal fins, and others form a nearly complete ring around the base of the tail; small irregular scutes are also present on the lower parts of the caudal peduncle. Dorsal and anal fins obscurely angular, their hinder margins almost straight. Middle portion of caudal fin emarginate, the outer lobes rounded.

Colour.—Sides of head, body, and tail with sinuous dark (blue) lines, which are not so broad as the light interspaces; very indefinite intermediate bars can be traced on the sides of the snout, portions of the body, and on the caudal peduncle. The dark bars become broken up into spots on the upper parts of the sides, and they give place to a network of light-blue lines on the abdomen. Caudal ornate, with an intramarginal dark band, with which several irregular dark inter-radial bars are connected.

Described and figured from a specimen 180 mm. long.

A second example, of about the same length, differs in the form of the dark bars on the carapace and in having the spines but little developed. The supraorbital, mediolateral, and two infralateral spines are rudimentary, and the anterior infralateral spine is absent. The dark bars on the body and tail are much broader than the lighter interspaces, and are defined by a narrow darker line on each margin. This is evidently a variation of the form described above.

Loc.—East of Flinders Island, Bass Strait.

"Simplon" Station 3, 80-140 fathoms.

ARACANA ORNATA, Gray.

Pl. xxiv.

Ostracion (Aracana) ornata, Gray: Ann. Mag. Nat. Hist., i., 1838, p. 110; Richardson: Trans. Zool. Soc., iii., 1849, p. 165, pl. x., fig. 2; Hollard: Ann. Sci. Nat., (4), vii., 1857, p. 142 (*O. nasus*, MS.).

Aracana ornata, Günther: Cat. Fish. Brit. Mus., viii., 1870, p. 267; Castelnau: Proc. Zool. Soc., Vict., i., 1872, p. 246; Macleay: Proc. Linn. Soc., N.S.W., vi., 1881, p. 334; Johnston: Proc. Roy. Soc., Tasm., 1882 (1883), p. 136, and 1890 (1891), p. 38; Kent: "Naturalist in Australia," 1897, p. 187, chromo pl. vii., figs. *a-c*.

D. 10-11; A. 10; P. 1+9-10; C. 11.

Length of head 3·08-3·5, depth of body 1·4-1·5 in the length without the caudal rays. Snout, measured from the orbital margin to the lips, 1·3-1·5 in the head. Narrowest interorbital width a little greater than the orbital diameter, which is 2·5 in the head. Longest pectoral ray 1·4-1·5, dorsal 1·2-1·5, anal 1·5-1·7, and median caudal ray 1·5-1·6 in the head.

Snout compressed, its anterior profile oblique in the young, subvertical and elevated above into a prominent hump in larger specimens. Interorbital space flat, the supraorbital margins slightly raised. Back broad, almost flat, and evenly arched. Abdomen compressed into a keel, its profile more or less evenly arched from the mouth to the vent. A very long compressed spine above the middle of each eye is directed upward, and sometimes slightly forward. Two similar but smaller spines are present on each side of the back. Another on the middle of the side, well behind the pectoral fin. Lower lateral ridge obsolete, its usual position indicated by two or three spines; the first below the posterior base of the pectoral fin, the last below the base of the dorsal fin, and a smaller one, usually present, midway between these two.

Carapace uniformly granular, its scutes not clearly defined. Abdominal surface more or less deeply and irregularly grooved. Imperfect scutes are present behind the dorsal and anal fins, and on the upper and lower surfaces of the end of the caudal peduncle. Anterior dorsal and anal rays very slightly produced in some specimens, forming a distinct angle to the margins of the fins.

Colour.—Entire carapace and tail ornamented with polygonal spots and paired brownish bars on a light ground-colour of pale-blue, white, or pale-yellow. The sides of the snout bear more or less numerous oblique bars, which also extend over the sides of the abdomen, where they are sometimes irregular and vermiculate. The polygonal spots on the sides of the carapace form distinct rows in some specimens, but are more irregular in others, and each usually has a central blue spot. Caudal peduncle and bases of dorsal and anal fins with dark paired stripes, separated by narrow blue streaks, and disposed more or less horizontally; the interspaces are pale-blue or white. Anterior portions of dorsal and anal fins darker. Caudal with blue inter-radial bars, which are symmetrically disposed and connected by an intramarginal series of loops; these bars are defined by darker lines, and vary in form; they are scarcely developed in our smallest specimen.

Two young specimens, 87 and 93 mm. long, respectively, differ in having the sides of the carapace marked with brown bars, similar to those on the snout, abdomen, and tail, instead of being ornamented with polygonal spots. The caudal fin is almost or quite plain.

Described from fourteen specimens, 87-114 mm. long, the largest of which is figured.

Kent regarded this species as the male form of *A. aurita*, though he offered but little proof of his contention. We are unable to examine the sexual organs of our specimens, and in the absence of more definite information prefer to keep the two forms separate.

Loc.—East of Flinders Island, Bass Strait, 40 fathoms; off the mouth of the Murray River, South Australia, 20 fathoms; Glenelg, Gulf St. Vincent, South Australia; nine to 10 miles west of Glenelg, Gulf St. Vincent, 10-12 fathoms; Henley Beach, Gulf St. Vincent.

Klunzinger (7) has recorded *A. ornata* from Port Darwin, but this locality is doubtless incorrect. As far as known, the species is confined to Victoria, South Australia, and Tasmania.

ARACANA FLAVIGASTER, Gray.

Pl. xxv.

Ostracion (Aracana) flavigaster, Gray: Ann. Mag. Nat. Hist., i., 1838, p. 110; Richardson: Trans. Zool. Soc., iii., 1849, p. 164, pl. xi., fig. 1.

Acerana flavigastra, Kaup: Arch für Naturg., xxi., 1855, p. 219.

Aracana flavigastra, Fowler: Proc. Acad. Nat. Sci. Philad., 1907 (1908), p. 439.

Aracana amoena, Castelnau: Proc. Zool. Soc., Vict., i., 1872, p. 207; Macleay: Proc. Linn. Soc., N.S.W., vi., 1881, p. 335.

D. 9-11; A. 10-11; P. 1 + 10; C. 11.

Length of head 3·07-3·2, depth of body 1·4 in the length without the caudal rays. Narrowest interorbital width 1·9-2·05 in the head, and greater than the orbital diameter, which is 2·3-2·6 in the head. Longest pectoral ray 1·4, dorsal 1·3, anal 1·5, and median caudal ray 1·4 in the head.

Snout slightly compressed, oblique, gibbous above in larger specimens. Interorbital space flat, the supraorbital margins scarcely elevated. Back broad, almost flat. Abdomen compressed, keeled; its profile variable, being almost evenly arched in our largest specimen, and more or less flattened in the smaller ones. A long compressed spine above the middle of each eye, directed upward and sometimes slightly forward. Two large compressed supralateral spines inclined backward. A large mediolateral spine is present in the small specimens, but is reduced in the larger one. Two or three infralateral spines, the anterior placed below the hinder base of the pectoral fin, and the posterior below the dorsal fin; a smaller one may be present midway between these two, but is wanting in the largest example, and the other spines are reduced.

Carapace uniformly granular. The scutes are rather widely separated in front of the gill-opening, and somewhat irregular naked areas are present on the posterior portion of the back and abdomen. Small scutes are present behind the dorsal and anal fins, and on the upper and lower surfaces of the caudal peduncle. Anterior dorsal and anal fins a little produced; caudal either truncate, slightly emarginate, or slightly rounded, according to the extension of the exterior rays.

---

(7) Klunzinger: Sitzb. Akad. Wiss. Wien., lxxx., p. 424.

Colour.—Sides of carapace and caudal peduncle with more or less sinuous dark bars, which become irregular and anastomosing on the supero-posterior portions of the sides; they are variable in number, there being about twelve on each side in a small and twenty-one in a larger specimen; they are oblique on the sides of the snout and about as wide as or slightly wider than the light interspaces, but are almost horizontal on the sides and on the caudal peduncle, and usually become broader on the latter. Bases of the dorsal, anal, and pectoral fins with oblique dark bars, which vary in number and disposition. Fins plain, the anterior dorsal and anal rays slightly darkened.

Described from five specimens, 101-135 mm. long. The smallest is in general agreement with Richardson's figure, though the dark bands are not wider than the interspaces as he shows them, and the abdomen is less angular, and its depth not so great. Our largest specimen, which is figured, differs in having the bands more numerous and the snout gibbous in front of the eyes.

Günther has united *A. flavigaster* with *A. ornata*, basing his opinion upon an examination of the types of both forms. We scarcely think the specimens here described and figured can be regarded as forms of *A. ornata*, since they differ from that species in having the snout oblique instead of subtruncate in adults, and the dark bars on the caudal peduncle single instead of in pairs. If *A. flavigaster* is correctly associated with *A. ornata*, our specimens should apparently be identified as *A. amoena*, Castelnau.

Loc.—Tamar River, Tasmania; off the mouth of the Murray River, South Australia, 20 fathoms; nine to ten miles west of Glenelg, Gulf St. Vincent, 10-12 fathoms.

KENTROCAPROS, Kaup.

Acerana, subgenus ***Kentrocapros***, Kaup: Arch. für Naturg., 1855, xxi., p. 220 (*Ostracion hexagonus*, Thunberg).

This genus is apparently valid. It is allied to *Aracana*, having the carapace flat above, but the supralateral ridge bears only one large spine; there is a mediolateral ridge armed with more or less numerous spines, and the abdomen is scarcely keeled.

Ostracion hexagonus, Thunberg, is synonymous with *O. aculeatus*, Houttuyn, according to Günther and Jordan and

Fowler,(8) but the latter authors have erroneously placed it in the subgenus *Capropygia*. *Aracana spilonota*, Gilbert,(9) also belongs to the genus *Kentrocapros*.

EXPLANATION OF PLATES.

PLATE XVI.

Capropygia unistriata, Kaup. Specimen 90 mm. long, Investigator Group, South Australia, 37 fathoms.

PLATE XVII.

Anoplocapros lenticularis, Richardson, var. *grayi*, Kaup. Specimen 230 mm. long, Port Jackson, New South Wales.

PLATE XVIII.

Anoplocapros gibbosus, n. sp. Type, 250 mm. long, Investigator Group, South Australia, 37 fathoms.

PLATE XIX.

Caprichthys gymnura, gen. et. sp. nov. Type, 100 mm. long, Doubtful Island Bay, South-western Australia, 20-25 fathoms.

PLATE XX.

Aracana aurita, Shaw. Specimen 205 mm. long, off Flinders Island, Bass Strait.

PLATE XXI.

Aracana aurita, Shaw. (?) Young specimen 22 mm. long, Western Port, Victoria

PLATE XXII.

Aracana spilogaster, Richardson, var. *spinosissima*, nov. Type of variety, 160 mm. long, Tasmania.

PLATE XXIII.

Aracana spilogaster, Richardson, var. *angusta*, nov. Type of variety, 180 mm. long, east of Flinders Island, Bass Strait.

PLATE XXIV.

Aracana ornata, Gray. Specimen 114 mm. long, Mouth of the Murray River, South Australia, 20 fathoms.

PLATE XXV.

Aracana flavigaster, Gray. Specimen 135 mm. long, Tamar River estuary, Tasmania.

---

(8) Jordan and Fowler: Proc. U.S. Nat. Mus., xxv., 1902, pp. 283-284; Tanaka: Fig. Descr. Fish. Japan, vii., 1912, p. 119, pls. xxxi. and xxxii.

(9) Gilbert: Bull. U.S. Fish. Comm., 1903, ii. (1905), p. 626, fig. 242.

THE NATIVES OF MAILU: PRELIMINARY RESULTS OF THE ROBERT MOND RESEARCH WORK IN BRITISH NEW GUINEA.

By B. MALINOWSKI, Ph.D., Cracow,
Robert Mond Travelling Student in the University of London.

(Communicated by Dr. Stirling, C.M.G., F.R.S.)

[Read October 14, 1915.]

PLATES XXVI. TO XLIII.

TABLE OF CONTENTS.

Page
PREFACE 496

INTRODUCTION.

Prof. Seligman's Classification of the Papuo-Melanesians; the Mailu Problem—The Natives of Mailu, or Toulon Island, and the Mailu-speaking Inhabitants of the Mainland—The Ethnic Position of the Mailu; their Relation to the Motu-speaking Tribes; Use of the Motuan Language—Remarks on the Conditions of Work and on the Methods of presenting the Material 497

CHAPTER I.

GEOGRAPHY.

The Country of the Mailu; Rainfall; Rivers; Flora and Fauna; Reefs; Quarries—The Villages—The Neighbours of the Mailu 503

CHAPTER II.

Sec.

SOCIAL DIVISIONS.

1. *The Tribe.* General Remarks—The Mailu Tribe and the Relations between the Different Villages 509
2. *The Village Community.* The Type of the Mailu Villages; Surroundings; Village Buildings—The Village Community as a Social Unit 513
3. *The Dúbu (Clan and Subclan).* Description of the Clan, the Subclan, and their Relation; the Clubhouse—Sociological Character of the Clan and Subclan ... 517
4. *The Household and the Family; Kinship.* Household and Family—Houses and Housebuilding—Kinship ... 521

CHAPTER III.

Sec.

TRIBAL LIFE.

1. *Daily Life.* Division of Daytime—Sleeping—Toilet, Dress, Cleanliness Meals—*Vevéni* Custom—Food: Raw Materials and Preparation—Cooking and Dishing-up—Sago Dishes and Coconut Cream—Narcotics ... 537
2. *Village Life.* The Seasons and their Influence upon the Social Life of the Natives—Normal Life in the Village 554

Page.

3. *Sexual Life and Marriage.* Sexual Life before Marriage—General Remarks about Marriage—Marriage in its Individual Aspect; Marriage Ceremonies—Relations between a Man and his Wife's Family as established by Marriage—Essentials of the Marriage Contract . . 559
4. *Children and their Play.* Birth and Infancy—Childhood and Initiation of Boys—Play and Games—Toy Boats and Sailing Games of the Boys 572
5. *Regulation of Public Life; Legal Institutions; Góra (Taboo).* General Remarks—Rudimentary Measurers corresponding to Criminal Law—Taboo *(Góra)* ... 576
6. *Warfare and Headhunting* 588

CHAPTER IV.

Sec.

ECONOMICS.

1. *Land and Gardens.* Land Tenure—Garden Making—The Coconut and Betelnut—Use made of some Jungle Plants 592
2. *Hunting* 601
3. *Fishing* 606
4. *Transport and Trade.* Introductory Remarks—Description of Native Canoes and of Native Sailing—Ownership of Canoes—Trading Expeditions 612
5. *Forms of Work.* General Remarks Communal Labour—Sexual Division of Labour 629
6. *Property and Inheritance.* Introductory Remarks—Communism—Native View of Economic Value—Inheritance 634
7. *Industries.* Introductory Remarks—Pottery—Arm-shells and other Shell Ornaments—Baskets—Stone Implements—Carvings 640

CHAPTER V.

Sec.

MAGICO-RELIGIOUS ACTIVITIES AND BELIEFS.

1. *Dreadful Beings; Spirits; Sorcery.* Fear of Darkness—Nature of the Dreaded Beings; the *Bará'u*—Spirits of the Dead—*Karavéni; O'o* 647
2. *Magic.* Black Magic—White Magic apportioned to Individuals—Magic of General Usage 654
3. *The Feast (Madúna).* Sociological Importance of the Feast—Connection between the Feast and the Dance performed at it—Changes in Village Life when the Feast approaches—Series of Minor Feasts and Preparations for a *Góri Madúna*—The Main Feast—Parts played by Different Social Divisions in the Feast ... 664
4. *Death, Burial, and Mourning.* General Remarks—The Mourners—The Mourning—Weeping for the Dead, and Burial; Mortuary Feasts—After Life—Final Mortuary Feast and Treatment of the Skull of the Deceased ... 685

CHAPTER VI.

Sec.

ART AND KNOWLEDGE.

1. *Art.* Decorative Art—Dances and Songs 697
2. *Knowledge.* Knowledge of Stars and Weather—Knowledge of Disease and Doctoring 701

PREFACE.

The ethnological information presented in this memoir was collected during a stay of six months in Papua, from the beginning of September, 1914, till the end of February, 1915. The expedition was suggested by my friend and teacher, Prof. C. G. Seligman, and its organization and scientific direction has also been in his hands. I owe him a further debt of gratitude in that he has made himself responsible for the financing of the expedition, the funds for which were to a great extent supplied by Mr. Robert Mond, F.R.S.E., the well-known scientist and benefactor of science. In every way I am under the greatest obligation to Prof. Seligman, and I hope my work will prove not altogether unworthy of the great trouble and kind care he has taken to make it possible.

I would not have been able to conduct my investigations with any hope of success without the kind and very effective assistance given me by the Federal Department of External Affairs, and by the Papuan Government. Both Mr. Atlee Hunt, C.M.G., Secretary to the Commonwealth Department of External Affairs in Melbourne, and His Excellency Judge J. H. P. Murray, Lieutenant-Governor of British New Guinea. have taken a friendly interest in my work and have given me the best opportunities for carrying it out. To both these gentlemen my sincere thanks are due.

For much help in my investigations I have to thank the Hon. H. W. Champion, Secretary to the Papuan Government, and Dr. W. M. Strong, of Port Moresby.

I also owe much to the kindness of the Resident Magistrates of the Divisions which I visited—Mr. L. P. B. Armit, of Abáu; Mr. C. B. Higginson, of Samarai; and Mr. A. H. Symons, of Woodlark Island.

In actual field work I have been greatly helped by the Rev. W. J. V. Saville, of the London Missionary Society, missionary in Mailu, and by Mr. Alfred Greenaway, a resident of long standing in that district. I had also the good fortune to meet Dr. A. C. Haddon, F.R.S., in the field during his short visit to Mailu.

Prof. E. C. Stirling, C.M.G., F.R.S., of Adelaide, has read and corrected my manuscript and given me his invaluable advice on many points. He has also undertaken to edit this memoir. I owe him personally and scientifically more than mere words of acknowledgment can express.

Prof. W. Baldwin Spencer, C.M.G., F.R.S., of Melbourne, whose investigations have marked an epoch in ethnology, gave me the benefit of his unique experience in field work. The personal interest he has been good enough to show in the work of a beginner has been the greatest encouragement I could have received.

My thanks are due to Dr. R. Pulleine, of Adelaide; to Mr. C. Hedley, F.L.S., of the Australian Museum; and to Mr. W. Howchin, F.G.S., Lecturer on Geology in the University of Adelaide, for much help given me in connection with the publication of this memoir.

The drawings in the text have been executed by Miss P. F. Clarke, partly from actual specimens and partly from rough sketches made in the field.

Some parts of the manuscript might have been amplified by adding comparative notes and by incorporating such information as has been obtained among the kindred and neighbouring tribes, the Southern Massim to the east and the *Sinaughólo* and Motu to the west. I hope, however, that I shall be able to collect some more material, especially among the Southern Massim of *Suá'u* and *Bónabóna*, and I am eager to resume field work as soon as possible.

B. M

Samárai, Papua, June 9, 1915.

INTRODUCTION.

Seligman's Classification of the Papuo-Melanesians; the Mailu Problem.—In his well-known treatise on the "Melanesians of British New Guinea," Prof. Seligman has laid the foundations of Papuo-Melanesian ethnology. He classifies the natives of the territory in the following manner, taking into account physical, linguistic, and cultural data. Calling all the inhabitants of the "Great Island" Papuasians, he says:—"The term Papuan will be limited to the, geographically, more western Papuasians, a congeries of frizzly-haired, and often mop-headed, peoples, whose skin-colour is some shade of brownish-black. The eastern Papuasians—that is, the, generally, smaller, lighter coloured, frizzly-haired races of the eastern peninsula of New Guinea and its archipelagos—now require a name, and, since the true Melanesian element is dominant in them, they may be called Papuo-Melanesians."(1)

These latter (the Papuo-Melanesians) present again two entirely different types, both from the anthropological (physical) and ethnological (cultural) points of view. In this pamphlet I shall adopt Prof. Seligman's classification and terminology and, with him, "shall call the two great divisions of the Papuo-Melanesians the Massim (Eastern Papuo-Melanesians) and the Western Papuo-Melanesians respectively."(2)

---

(1) C. G. Seligman: "The Melanesians of British New Guinea." Cambridge, 1910, pp. 1 and 2.

(2) *Loc. cit.*

In his book, Prof. Seligman has given the results of his researches among five different tribes, or groups of tribes. These may be considered representative of the different cultural types found in the Papuo-Melanesian area. The *Roro*-speaking people and the *Mekeo* are typical of the most westerly of the Western Papuo-Melanesians. Their culture shows signs of some modification, due to the influence of pure Papuan tribes in their neighbourhood. The *Koita*, described in the first part of Prof. Seligman's work, represent a perfect type of the pure Western Papuo-Melanesian culture, as it exists amongst the bulk of tribes inhabiting the (administrative) Central Division of the Territory. The two last parts of the treatise deal with the two subdivisions of the Massim, the Northern Massim, who inhabit the Trobriand Islands and Woodlark Island, and the Southern Massim, who live in the extreme eastern end of the mainland and on the islands which run south-eastwards from it—the d'Entrecasteaux Group, the Louisiades, and the minor groups lying around and between. Thus we owe to Prof. Seligman a complete picture of the ethnographical area covered by the term Papuo-Melanesian.

Prof. Seligman says, however, in the introduction to his book:—"Very little is known concerning the population of the country between *Aróma* and Mullins Harbour, in the neighbourhood of which the territory of the Massim begins; in fact, this is one of the least-known portions of British New Guinea."(3) It is with this area that the present study is concerned.

"A people, who may be called the Mailu, inhabit the country around Port Glasgow and Milport Harbour . . ."(4) The name *Mailu*, by which Prof. Seligman calls these natives, has also been adopted in this paper. Mailu is the name of the most important village of the tribe, which is situated on a small island (called Toulon, or Mailu Island), some four to five miles off the mainland, opposite Amazon Bay. The Mailu islanders have played quite a special and prominent part in the trade of the southern coast, and they also possessed certain industries (pottery, canoe-building, etc.) unknown, or hardly known, to the other natives of the district. Physically, they are undoubtedly much more robust and healthier than the average mainland native. They seem also to enjoy a certain amount of aristocratic *prestige* among the neighbouring villagers. Thus the term Mailu, applied to the natives of the whole district, is a fair use of the *pars pro toto* figure. I have also reason to believe that the whole district was known by that name to the other tribes on the southern coast, even before the white man's advent. The natives of the district sometimes call themselves by the generic name *Mágí*, which term I have occasionally used when I wished to imply that a statement referred to the whole district.

---

(3) *Op. cit.*, pp. 22 and 23.

(4) *Ibid.*, p. 24.

The Natives of Mailu Island and the Mailu-speaking Inhabitants of the Mainland.—The natives of Mailu Island differ in several points from their fellow-tribesmen, though in broad outline their culture and their social institutions seem to be identical. The bulk of my work was done in a Mailu village on Toulon (or Mailu) Island. Since I made only a few short visits to three points on the mainland, I was unable to do more than to ascertain broadly whether certain statements were true of the whole district, or applicable exclusively to Mailu Island. On the other hand, many of my Mailu informants had spent much time on the mainland, and, knowing the differences and similarities, were able to enlighten me in this respect on many points, and I have always been as careful as I could to state the geographical range of my statements. Generally speaking, where there is no special reservation, a statement, though obtained in Mailu village, has been considered by me to hold good for the whole district.

Ethnic Position of the Mailu; their Relation to the Motu-speaking Tribes; Use of Motuan Language.—The Mailu are the most eastern of the Western Papuo-Melanesians; in fact, their immediate neighbours on the east belong to the southern Massim stock (comp. next chapter). The social constitution of the Mailu and the essential features of their culture are of the same type as those of the *Koita*, described by Seligman in the first section of his treatise as representative of the Western Papuo-Melanesians.

This masterly outline of a Western Papuo-Melanesian culture and sociology I always kept before me as a model. (5)

---

(5) In fact, being obliged to wait in Port Moresby for over three weeks for a boat to Mailu, I had the good fortune to work with Prof. Seligman's own informant *Ahúia Ova*, a man of great natural intelligence, who, moreover, had been trained by Prof. Seligman and Capt. Barton as an accomplished native ethnologist. Since Seligman and Barton have left the territory *Ahúia* has been conducting investigations on his own account for the last ten years. I have been able to obtain a certain amount of information through my conversations with *Ahúia* and during two native hunting expeditions at which I was present. Thus I had, on the one hand my own raw materials, and on the other similar materials skilfully shaped into a final form by Dr. Seligman. By comparing the two sets of information I was able to learn in the way of method a great deal more in those few weeks than I could have done in many months had I been obliged to depend entirely upon my own efforts unaided by Dr. Seligman's previous experience.

The cultural resemblance of the Mailu to the *Koita* and allied tribes is the reason why I am giving in the text frequent footnotes referring the reader both to Prof. Seligman's description of the *Koita* and to some data I was able to collect among the Motu and *Sinaughólo* tribes, who live in close contact with the former but differ from them in some respects. I had specially good opportunities among the *Sinaughólo*, as I went there (at the end of my stay in Papua) in company with my friend *Ahúia*, by whom I was introduced to a number of well-informed, intelligent, and outspoken natives. The *Sinaughólo* customs and folklore closely resemble those of the Mailu, and in many cases comparison is very useful.

Besides the Mailu names of things, customs, etc., I am also giving as many Motuan terms as possible. This is partly because the Motu is a universal language among the natives in British New Guinea, or, at least, it is beginning to become such. If it were adopted (as was partially done by Dr. Seligman, who has given the Motu equivalents of all *Koita* terms) as an ethnological standard language for all the Papuasian tribes it would greatly facilitate matters, since it would bring into prominence identities and correspondences between the customs, ideas, and material culture of various tribes. I have been able to give the Motuan terms the more easily as I used that language in my conversations with the natives, especially towards the end of my work. I had been advised to acquire as much as possible of Motu, and I studied the grammar and vocabulary of the late Mr. Lawes before arriving in Papua.

During my first weeks in Port Moresby I made the most strenuous efforts to get a conversational smattering of the language. I took with me to Mailu a Motuan cook-boy, *Igua Pipi*, whom I used to employ as interpreter when talking with the natives. He translated my English into Motuan, and then the natives' statements back again from Motuan to English. I was sufficiently advanced in Motuan by that time to be able to check the conversation, and this was indeed essential, as my interpreter often misunderstood my questions. Gradually I began to ask questions in Motu myself, and relegated *Igua* from the position of an interpreter to that of a personified pocket dictionary, which was brought into requisition whenever a word was lacking or if the natives refused to penetrate the somewhat barbarous Motuan I was using. It must be added that it is much easier to speak and understand Motu when conversing with a non-Motuan, since he speaks it more slowly, less elaborately, and uses a much narrower range of words. In fact, a kind of "*Pidgin-Motu*" is now in process of formation. This "*Pidgin-Motu*" is, however, a form of the pure Motuan which, though simplified, is by no means distorted. It is infinitely better adapted to the natives' forms of thinking, and infinitely more expressive for him and for the investigator, than that dreadful mixture called "*Pidgin-English.*" Moreover, in Mailu absolutely no one spoke the latter, whereas practically all men under forty, and some of the elderly men, spoke Motu, some of them even excellently. Towards the end of my time in Mailu I was quite able to talk freely with my informants, discuss matters, raise objections, and, in short, use Motu as a completely satisfactory instrument of investigation. When I returned to Port Moresby, and then went with *Ahúia* to the *Sinaughólo* country for a fortnight, I was able not only to talk with the natives in Motu, but to follow their discussions in that language, though they speak it in the pure, unsimplified form. I am afraid I must explicitly boast of my facility for acquiring a conversational command of foreign languages, since I understand that the time in which I learned to speak the Motu would have been normally too short a period for acquiring a foreign, and especially a native, tongue. I wish also to state that the ability to speak Motu and to follow a conversation was of no small advantage in my work. Over and over again I was led on to the track of some extremely important item in native sociology or folklore by listening to the conversation of my boy *Igua* with his Mailu friends, who used to come from the village to see him.

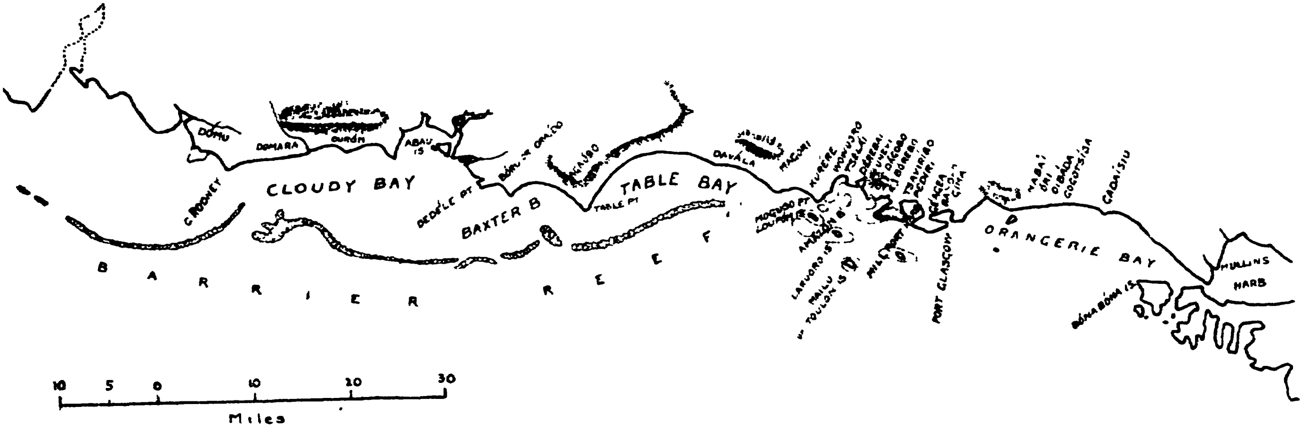
Remarks on the Conditions of Work and on the Methods of presenting the Material.—I may also mention that during the best part of December, January, and February I was living quite alone with the natives, except for short periods of about two or three days, when I travelled on board a steam launch, or stayed at Port Moresby. I found that work done under such circumstances is incomparably more intensive than work done from white men's settlements, or even in any white man's company; the nearer one lives to a village and the more one sees actually of the natives the better. In fact, as I work out my notes, I see that only such information is quite satisfactory as has been obtained by witnessing an occurrence or seeing a thing, and subsequently (or previously) discussing it with the natives. In the course of this memoir I am always careful to state explicitly what I have not seen, and what therefore is described merely from information gathered by questioning natives. I also try to convey to the reader, as clearly as possible, under what circumstances and with what degree of accuracy every item of information has been collected. The somewhat personal data just given have the object of allowing the reader to visualize and to judge the methods of field work used in collecting this material.

The division into chapters and sections which I have adopted needs also a word or so of explanation. By adopting a fairly systematic division—Geography, Sociology, Economics, Magico-religious matters, etc.—I have, of course, deviated from a purely topical presentation of facts. I shall undoubtedly be taken to task for having thus "put some theory into the facts," and, in the first place, for having swerved from the native forms of thinking and abandoned the native classification.

A thorough reply to such an objection would require a long philosophical digression, for which there is no room here. I wish, however, to emphasize the fact that I have always tried to leave all preconceived ideas on one side when working among the natives, and to classify and register facts according to their essentials as I saw them then and there. In discussing facts, which may be called religious or magical, according to the student's point of view and definition, I have followed Dr. Marett's excellent advice and hints, given in the "Notes and Queries," and, in accordance therewith, I have called them throughout by the impartial term Magico-religious. I have tried to preserve the same attitude in all the various subjects investigated.

Again, I have always endeavoured to preserve as far as possible the natives' own way of looking at things, and whenever I was able to obtain a native classification of facts—as, for instance, that implied in the term *Góra* (chap. iii., sec. 5)—I was careful to record it and to state it as exactly as possible.

In the spelling of native names I have adopted the system recommended by the "Notes and Queries," which practically consists in the use of the consonants with their English sounds and the vowels with their Italian values. I found this system entirely sufficient with Mailu. The only sign I found necessary to introduce refers to the distinction between the diphthongal sounding of two vowels and their separate sounding. Wherever the vowels are simply juxtaposed they are to be sounded dipthongally. Wherever the two vowels retain their separate values I have indicated this by putting an apostrophe between them, but it is important to note that the apostrophe so placed does not imply any pause or any specific sound, similar to the Arabic *ain*. Thus in the word *Bó'i* the apostrophe between *o* and *i* means that the vowels have to be pronounced as in the Italian *poi*, and not as in the English *boy*. I have also put an accent upon nearly every word, except those in which I failed to record it through haste in taking the notes. On some compound words I have put a double accent. As a matter of fact, the natives join the component parts and pronounce them



MAP SHOWING MAILU, OR TOULON, ISLAND AND ADJACENT COAST OF PAPUA like one word, though they place the accent on each component more or less as is done in the German compound words.

It must be remembered that the sounds *r* and *l* ought to be replaced by an intermediate sound, as the natives do not distinguish between them. It is certainly a fact that the natives, nowadays, sound very distinct *r*'s and *l*'s when pronouncing words slowly and clearly for the European to take them down. There is not the slightest doubt, however, that this is a phonetic corruption, under European influence. Originally the natives had one "intermediate" sound, and there was no distinction between *r* and *l*. This is the reason why they, at the present time, always mix the two sounds. The same native will, on the same day, say both *Mailu* and then *Mairu;* or mix freely *Kurére* and *Kuléle*, if you press him for clear *r*'s and *l*'s.

The same holds good in Mailu with reference to the sounds *t* and *s;* these are always mixed, a Mailu native saying quite as often Tamarai as Samarai, for instance. There is, or rather was originally, no distinction between *t* and *s* among the Mailu, the "intermediate" sound *ts* (Polish and Slavonic *c*—the sound in *car* = *tsar*). In contact with Europeans, and under the necessity of adapting their words to our spelling, the natives have learned to split the sound *ts* into *t* and *s*, the result being that the two latter sounds are interchangeable, as they cannot really decide which to use. I have used the spelling *ts* throughout. Whenever the Mailu natives talk to each other they always use the original sound *ts;* never *t* or *s*.

CHAPTER I.

GEOGRAPHY.

The Country of the Mailu; Rainfall; Rivers; Flora and Fauna; Reefs; Quarries.--The Mailu inhabit the seaboard from Cape Rodney in the west to the middle of Orangerie Bay in the east. Near Cape Rodney there is a belt of flat alluvial soil, extending far inland, and eastwards as far as Cloudy Bay. Near the latter the hills, which in this part of the continent run in a series of longitudinal parallel ranges, rising one beyond the other and culminating in the Main Range, approach the sea, though they do not rise to any great vertical height.

Cloudy Bay is closed on the east by Dedéle Point; then comes Baxter Bay terminated by Table Point, so named after the flat table-topped hills which rise a couple of miles beyond the level foreshore of the Cape. From Table (or *Batumata*) Point to Cape Mogúbo (Greenaway Point) an alluvial flat again stretches for some distance inland. From the sea the ranges, rising in succession one above the other, here and there broken by deep gorges, and with the dim, bluish profile of the main range in the background, present a fine scene. Towards Mogúbo Point the hills approach the shore again, and beyond the small Amazon Bay a range of little hills rises straight from the sea, forming a series of extremely picturesque bays, surrounded by heavily timbered, and luxuriously green, slopes, with here and there a fringe of coconut palms running along the shore in the neighbourhood of the villages.

After that the hills recede again to a certain extent and the vast expanse of Orangerie Bay opens, running in a slightly curved line as far as the entrance to Mullins Harbour. Only the western shores of Orangerie Bay are inhabited by the Mailu. Almost exactly through its centre, at a village called *Gadaisiu*, runs the boundary line between the Mailu and the Southern Massim.

The Mailu country is situated beyond the so-called dry-belt. It has a fairly heavy rainfall, especially during the north-western season, but there are good rains even at other times. It is clothed with tropical vegetation, and the hills are always green. The contrast with the parched brown slopes near Port Moresby, when one goes eastwards in the dry season, is very striking. The small island of Mailu and the two flat coral islands of *Laruóro* and *Loupóm* are exceptions to this luxuriance, as they do not get the same rainfall, in consequence of their distance from the hills. The steep slopes of the Mailu hills are covered with *Lalang* grass, and, in the dry season, are parched and yellow. There are no big rivers in the district which are navigable for any appreciable distance even for small craft. The alluvial flats of Amazon Bay, Table Bay, Cloudy Bay, and those near Cape Rodney are drained by a series of streams, some of which may be navigated by light-draught vessels, though for a few miles only. There are also swamps throughout the district, on which sago grows freely.

The high tropical jungle yields a rich supply of all the kinds of timber used by the natives, as well as of many sorts of fibre, bast, cane, and of other raw materials for native industries. The fertile and well-watered soil encourages the growth of all the native garden plants, such as taro, bananas, sugar cane, yams, and taitu, as well as the introduced sweet potato, pawpaw, and sago. It must be noted that the dry tracts of the New Guinea coast are deprived of some of these vegetables (especially taro), as well as sago.

The Mailu district has, of course, the same supply of animals as the other parts of the continent—*viz.*, wild pigs, small kangaroos (wallaby), cuscus, bandicoots, etc., as well as an enormous variety of birds, with magnificent plumage, and edible for the natives.

The shore, and especially the reef, affords splendid opportunities for fishing and for the collection of shell fish. The shells constitute an important raw material for implements and decorations.

The Barrier Reef runs along some parts of the coast, though it is absent on others. It extends from Cape Rodney in the west to the middle of Table Bay. Then there are again patches of reef off Mogúbo Point. In Amazon Bay there are ring-barriers of coral encircling the islands.

There were no stone quarries affording really good material in the district, and the majority of stone implements was imported. The only place whence stone was taken for making sago-pounders and other implements was in the island of *Abá'u* in Amazon Bay. There was, however, good pottery clay on Mailu Island.

The Villages.—The Mailu or *Mágí* inhabit the coast of this country, some of their villages lying directly on the beach, others, built before the advent of white man's influence, on the hills, which rise straight from the sea between Amazon and Orangerie Bays. Again, on some parts of the coast, natives speaking a different language, and probably belonging to a different stock, came quite close to the coast, though there were no non-Mailu villages on the beach. It will be best to enumerate the Mailu villages and characterize them briefly, as well as to say a few words about their neighbours on either side and inland. (6)

Beginning from the east, *Gadaísiu* is the first place inhabited by the Mailu. As a matter of fact, it is a mixed village, about half the houses being built in the Massim manner and inhabited by the Massim (*Bónabóna* subdivision) and the rest showing the Mailu style and tenanted by Mailu-speaking natives. Succeeding *Gadaísiu*, westwards, comes a group of Mailu villages—*Gogotsíba*, *Oiháda*, *Orí*, *Nabá*—some built on the shore, some a few miles inland. These villages have some specific customs, by which they differ from the other Mailu (comp. chap. v., secs. 1 and 4). Beyond these, all of which lie on the shores of Orangerie Bay, come the places situated on the hills between Orangerie and Amazon Bays. All the latter were built on the hilltops for purposes of defence. Under the influence of the new conditions of existence and of the complete personal security which these assured, these villages moved to the shore. On the hills overlooking the first bay (Port Glasgow) stood the villages of *Banóro*, *Géagéa*, and *Gima*, the last-mentioned being the only one that has not migrated, while *Banóro* and *Géagéa* now stand on the shores of Port Glasgow. In the next bay (Milport Harbour) are the villages of *Tsaviríbo* and *Pedíri*, which removed to the shore relatively recently. In the next bay—a broad and shallow one—the villages of *Bórebo*, *Dágobo*, and *Unéri* are situated; further west comes *Dérebai* itself, occupying the whole shore of a small bay. The *Tselái*, *Wowuóro*, and *Kurére* villages lie Amazon Bay. The first two came down from the hills, and the last-mentioned is a fairly recent Mailu colony, which came over in the first years after the establishment of the white man's rule and security in the district.

---

(6) I am indebted to Mr. Saville for much of the information on this subject.

In Amazon Bay, or, rather, opposite it, lie, as said above, the two flat coral islands (*Laruóro* and *Loupóm*) and the rocky island of Mailu (Toulon Island). Each of them harbours a village. Mailu is, as has been stated, the most important and largest village in the district. Besides *Kurére*, it has sent out the colony of *Oraído* or *Bóru*. It was the leading trading centre on the whole southern coast from *Hulá'a* to *Suá'u*, and it was also the village most dreaded by the mainland communities, with the majority of which it was constantly at war.

Going westward from Mogúbo Point (the western end of Amazon Bay) we come upon the village community of *Magóri*, who now live on the plain up the *Baírebo* River, some five miles from the beach. This community, which came down from the hills only a couple of years ago, forms a non-Mailu speaking village. There is another non-Mailu village, *Deba*, now on the seashore, which recently came from the hinterland.

Beyond these we meet with the villages of *Daláva*, *Magaúbo*, and *Bóru* or *Oraído*. The first-named is a colony from one of the Amazon Bay island villages, *Laruóro*. *Oraído* is a Mailu colony, and *Magaúbo* seems also to be one, dating from an earlier period. All these villages are said to speak exactly the same dialect as the Mailu proper. In Cloudy Bay there are a few villages, not far from the shore, which speak non-Mailu languages, but I was not able to ascertain their names. Between Cloudy Bay and *Abá'u* there are the villages of *Duróm*, *Domára*, and *Dómu*, all of which speak Mailu, and it is said, even the same dialectic variety as the Mailu villages. These latter are also in very frequent communication with those villages of the extreme west, where they used to, and still, call on their westward expeditions (comp. chap. iv., sec. 4). I have not, however, been in this part of the district. Beyond these settlements begins the next ethnographic district, that of the *Aróma* natives.

The Neighbours of the Mailu.—As the Mailu—and especially the Mailu islanders—came under the influence of their neighbours, it seems advisable to say a few words about these, though I cannot give much information about the intercourse which takes place, or did take place in the past, between the mainland *Mági* and the tribes of the hinterland. There were a few things traded, such as some kinds of feather ornaments, bamboo, etc., which the inland tribes could easily obtain in exchange for the shell ornaments that were only accessible to people on, or near, the seashore; one or two Mailu dances also were said to come from the inland tribes (comp. chap. vi.). But on the whole the mutual influence does not seem to have been of great importance. I am not able to say anything about how far the sociology and material culture of the inland peoples resemble or differ from the Mailu.

The western neighbours of the Mailu, the *Aróma* people, possess a similar type of village, the same style of houses, and the same system of clans with paternal descent. They are, as far as I am able to judge, very much akin to the Mailu, and they were apparently always on friendly terms with the Mailu villagers, who yearly visited *Aróma* on trading expeditions, importing shell ornaments and exporting pigs. The cultural influence could not have been very great, owing to the great similarity of the two peoples. The *Aróma* were the link uniting the Mailu with other Western Papuo-Melanesians and, in that way, their contact with, and influence upon, the Mailu was important. The Mailu use the drums of the Hood Bay type, and they have adopted a dance—the *Bará*—originally coming from *Kerepúnu* in Hood Bay.

With their eastern neighbours, the Southern Massim, the Mailu were also in constant intercourse, and the influence of their culture upon the Mailu is more conspicuous, if only because of the fundamental difference between the two—the Mailu being Western Papuo-Melanesians, with definite communities, patrilineal clans, patrilocal marriage; and the Massim having their own different forms of social institutions and material culture, as well as many different beliefs and ideas. The influence of the Massim on the Mailu was both on the side of material culture and artistic production, but I could not trace any influence upon the social institutions of the tribe. Thus the tattoo of the Mailu women is identical with that found among the Southern Massim. Again, their technique and ornamentation in pottery is the same as that of their eastern neighbours. Some of their beliefs are parallel to those of the Massim, and they also dance a considerable number of dances originating from the east end. These similarities will be pointed out subsequently, when describing the different customs and institutions.

In order to make clear subsequent allusions to the various tribes, I shall give a brief outline of the anthropogeography of the Massim tribes of the Southern Coast.

The Western boundary runs, as we know, through the village of *Gadaisiu*, just at the centre of Orangerie Bay. The eastern half of the bay, the island of *Bónabóna*, at the entrance to Mullins Harbour, and the southern shores of that harbour are inhabited by people who are said to speak the same dialect. They are known by the generic names of *Dahúni* or *Bónabóna*. From the entrance of Mullins Harbour to Farm Bay live a people almost identical with the former, but said to speak a slightly different dialect. Their collective name seems to be *Dau'úi*. They have the same type of irregularly built village as the other Massim. Scattered over a large area, amid coconut palms and gardens, they are composed of what Dr. Seligman calls "hamlets"—*i.e.*, small groups of houses; a number, sometimes twenty or more, of such hamlets compose a large village.(7)

These natives also build the same kind of house as the other Southern Massim, and the resemblance extends to the internal arrangements, household implements, decorations, etc.

The line of demarcation running through the western end of Farm Bay is, however, important, since it is the boundary of cannibalism on the south-eastern coast of New Guinea. The first village in Farm Bay, *Saváia*, was the first Southern Massim village in which anthropophagy was practised. I have inquired carefully into this matter on both sides of the dividing line, and a thorough agreement between a great number of independent informants leaves no doubt as to this anthropogeographical boundary. The natives of Farm Bay, of *Suá'u* Island, and of the mainland coast as far as the Bay of *Modéva*, speak the same dialect, and they can be called the *Suá'u*, by which name they would also be best known to other natives. The last *Suá'u* village to the east in *Modéva* Bay is called *Núria*.

The next groups of Southern Massim, also speaking a slightly different dialect, are the *Rogéa* and *Sáriba* peoples, inhabiting the two islands of that name and the extreme end of the southern coast. Their first village on the coast is called *Guaváli*. Another group is formed by the Milne Bay people, generically called *Tavára*, which is the native name of the bay. With these we arrive at the Southern Massim area, comprised in Prof. Seligman's description, to which the reader is referred.

---

(7) Comp. Seligman, *op. cit.*, chap. xxxiv., for a detailed description of the Southern Massim village system.

CHAPTER II.

SOCIAL DIVISIONS.

1. The Tribe.

General Remarks.—The tribe, village community, clan, and household, or family, are the most important social divisions among the majority of native peoples, and consequently they must be described in connection with Mailu sociology. Among the natives of that district the village community, the clan, and the family are all extremely important units, and it would be impossible to give an account of the customs of the Mailu, or of their social life, without having drawn a clear outline of these social groupings. The "tribe," on the other hand, is a term which could scarcely be used when dealing with the social institutions of one district. The Mailu people, as a whole, possess a distinct cultural unity, but they by no means form one great social group bound by ties of solidarity; thus the term "tribe" may be applied to them to express the fact that they form one class in the ethnological sense, but not that they are a unit in the same sense. The formation of smaller groups within the "tribe" —confederacies of several villages—is, and was in olden days, of a much greater social importance than the cultural uniformity of the whole district (see below, in this section).

In this chapter I shall only give an outline of the social organization of the village community, clan, and household, and of the relations between the villages and village confederacies within the tribe. In order to understand thoroughly a form of social grouping it is necessary to see it in its active, functional aspect; to see how it acts as a unit in social life; what are the internal relations of its members, and what are its external relations with other groups. Such data will be supplied throughout all the chapters of this memoir in the detailed description of the different customs and institutions when the sociological aspect of the various customs, ceremonies, and beliefs are considered. But to be able to use the terms "tribe," "clan," "village community," etc., it is necessary to give a preliminary definition of these terms.

The Mailu Tribe and the Relations between the Different Villages.—As stated, the Mailu people as a whole have no social solidarity. Nevertheless, their linguistic unity, their local contiguity, and the identity of their material culture and social institutions make it necessary to treat them as a unit in this description. In the relations of village to village, however, the ethnographical unity does not find its sociological parallel. There were several groups of villages, which we may design by the name of "village confederacies." The villages of such confederacies maintained friendly relations between themselves, and were, broadly speaking, on terms of enmity with the others. Some of these confederacies were also on permanently good terms with villages outside the Mailu district. Thus the social and political unity of the Mailu tribe was divided not only by internal dissensions, but also by the adhesion of certain portions of the tribe to external centres

In the foregoing chapter the various Mailu villages have been enumerated. I shall now briefly state how those villages are grouped into small confederacies, which constituted the most extensive tribal or political units of the Mailu.

The most important of such groups was the Mailu village itself, with its recent colonies: *Oraído* and *Kurére*. This group was undoubtedly the most powerful politically, the Mailu being the most populous village of the district, and possessing the greatest number of war canoes. It is also the most important economically, inasmuch as it is the seafaring and trading community of the whole district, and even of the whole south-eastern coast. The group was also in possession of certain industries (pottery and canoe-building) which were unknown to the other villages.

The scattered Mailu villages to the west of Amazon Bay —*Daláva*, *Magaúbo*, *Duróm*, *Domára*, and *Dómu*—formed, as far as my information goes, another group. These are, on the whole, practically identical with the Mailu group in all cultural respects, though they hardly did any trading to speak of, did not build the big canoes, and knew not pottery in olden days, except perhaps the *Domára*. Nowadays things have changed considerably, all the natives adopting industries and activities from which, by pure inertia of custom and possibly by other factors, they had been excluded in the past. The western villages were on friendly terms with the Mailu group.

The two villages on the coral islands in Amazon Bay, *Loupóm* and *Laruóro*, form a group apart. They were both living under identical conditions, and they were similar in their economic activities and sociological features. They were keen fishermen, but in olden days they did not do much sailing, nor had they any big canoes. They were on good terms with each other, but they were not permanently friendly with the Mailu. This was especially the case with the village of *Laruóro*, which was nearer to Mailu, and used to make war with the latter. Thus tradition says that some time ago the *Laruóro* attacked the Mailu successfully, killing some, and forcing others to take flight on the boats. The Mailu retaliated so thoroughly that they drove the whole village away, after killing many. The fugitives sailed as far as *Gadaisiu*, the frontier village of the Southern Massim. There part of them remained, forming the Mailu half of the settlement, and part returned to their island village.

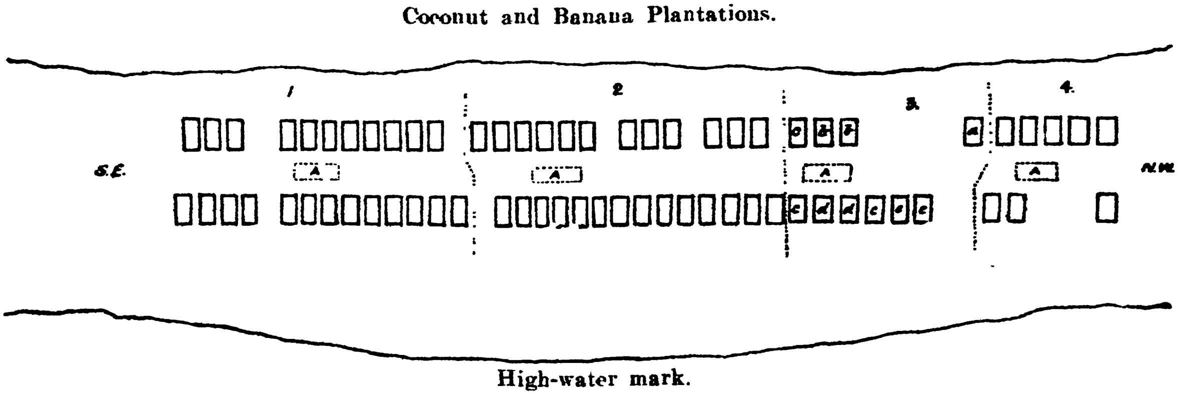
The villages of *Wowuóro*, *Tsélai*, and *Dérebai*, all of which are now on the coast, form another group. In olden days they were perched on the tops of hills round Amazon Bay. They were on permanent friendly relations with each other and with the village of Mailu.

The next group was formed of several villages, situated on the hills, towering above the three picturesque bays—Mayri Bay, Milport Harbour, and Port Glasgow. There was a long gap between *Dérebai* Hill, the place where the most eastern village of the foregoing group was situated, and *Dágobo* Hill, where the first village of this group lay in the olden days. The group consists of *Dágobo*, *Unévi*, *Bórebo*, *Pedíri*, *Tsavirího*, *Géagéa*, *Banóro*, and *Gíma*. All these villages were mutually friendly, though I was told that there was a closer bond of union between the first five and the last three respectively. All these villages used to be at war with the Mailu and with the Amazon Bay confederacy. They were linked with each other by several co-operative functions, as, for instance, by the common arrangements with regard to the annual feasts, which they gave in turn, and again by certain agricultural arrangements with regard to sago swamps (comp. the respective paragraphs).

The next group of villages comprised the communities living on the western shores of Orangerie Bay—*Oibáda*, *Nabáí*, *Ore*, and *Gogotstíba*. They had certain cultural characteristics in common (burial customs, sorcery; see below), and they seemed to have been on terms of political friendship with each other, whereas they were dreaded, disliked, and fought by the other Mailu, though the latter villagers seem to have been on better terms with them than with their own immediate neihbours, the *Bórebo*, *Pedíri*, *Géagéa*, etc.

These groups, or confederacies, were, as said, political units on account of their mutually friendly relations and common foes. They were also to a certain, though limited, extent social units on account of the trace of co-operation between them.

As there was a close resemblance between the villages of each group in their culture and customs, and possibly also



PLAN OF MAILU VILLAGE SHOWING THE DIVISION INTO CLANS.

1. *Bodéabo*. 2. *Urumóga*. 3. *Maradúbu*. 4. *Moráu*.

A, A, A, A, indicate the position of the *Dúbus* (club-houses) of each clan. This is a reconstruction, as the *Dúbus* no longer exist in Mailu village.

Subdivisions of the *Maradúbu* clan:—*a*, *Aritsadúbu*; *b*, *Bará'dúbu*; *c*, *Máradúbu*; *d*, *Díbodúbu*; *e*, *Mótsodúbu*. The separation of one of the *Máradúbu* houses (*a*) from the others of the block is quite exceptional.

in the dialectical variety of their speech,(8) those groups form ethnological subclasses. My studies have been, however, made nearly exclusively among one group, consisting of the villages of *Mailu* and *Kurére*, which in fact are identical, so that I am not able to do justice to the differences among the various groups, though I noted them in the few cases where, from being prominent, they were brought under my notice by my informants.

2. The Village Community.

Type of Mailu Village; its Surroundings; Village Buildings.—Perhaps the most important social division among the Mailu is that into village communities. These are the real political, economic, and sociological units of the Mailu tribe. The Mailu villages of the Western Papuo-Melanesian type, consisting of one compact group of houses, as opposed to the scattered villages of the Southern Massim.(9) They are extremely regularly built, more so than the villages of the *Sinaughólo*, which can be considered representative of the Western Papuo-Melanesians of the Central District. They were all built on land, the houses standing on piles.

All the villages with one exception—*Gíma*—are now built on the shore, and they all represent the same type (see page opposite for plan of Mailu village). They consist of two parallel rows of houses, forming a street some 10 to 15 metres broad, and, usually, they are quite close to the beach. Thus in Mailu there is a belt of some 30 metres between the high-water mark and the houses. The same holds good with reference to *Bórebo*, *Loupóm*, *Tsélai*, *Banóro*, *Géagéa*, etc. (comp. pls. xxvii. and xxviii.). Some villages, however, like *Kurére*, are about 100 metres distant from high-water mark.

The fronts of the houses are always turned towards the street, so that the fronts of the two rows face each other, while their backs are turned to the sea and to the gardens

---

(8) As I have no knowledge of the Mailu language, I am unable to speak with any authority about linguistic matters, and I am here only repeating what I was told by Mr. Greenaway and by my native informants, none of whom was reliable on this point. I missed the opportunity of discussing the subject with Mr. Saville, who knows the language well and who has studied the problem scientifically (*cf.*, his "Grammar of the Mailu Language" in the Journal of the Royal Anthropological Institute).

(9) Prof. Seligman draws attention to this feature as one of the cultural differences between the Southern Massim and the Western Papuo-Melanesians; comp. *op. cit.* Introduction *passim.*

(see pls. xxviii. and xxix.). There is again a space of 10 to 20 metres between the village and the gardens (see pl. xxxvi., fig. 2).

I am unable to say for certain whether the same type of street, formed by two parallel rows of houses, was also typical of the mainland villages at the time when they were still on the tops of the hills, though I was told by the natives that this was the case, and that *Gima*, the only remaining hill village, which I have not seen, is also built in the same manner.

The villages of the mainland east of Amazon Bay have all recently moved, and there are no extensive coconut groves near their present sites except near *Bórebo*, *Banóro*, and *Géagéa*, which were in olden days situated quite close to the shore and had their coconuts on the beach (see pl. xxviii., fig. 2). The villages on the islands and the older Mailu settlements in the west lie among coconut plantations. In Mailu village the palm trees overlook the houses on all sides (see pls. xxvii., xxviii., and xxix.). The street and the spaces on the beach and garden side are quite bare, all grass and weeds having been trampled down (see pls. xxix. and xlii., fig. 1). The beach is lumbered with canoes, the large *Oró'us* forming in Mailu a fine decoration for the sea front (see pls. xxviii. and xxxv., fig. 2). On this side of the village the nets are spread for drying and the canoes to be overhauled are beached above high-water mark. All preparations for sailing and fishing take place also on this side.

The women occupy themselves either on the beach or on the garden side of the house, making pottery or doing household work. It may be said that as a rule the street is kept clear of human encumbrances, being reserved by *étiquette* for thoroughfare. Dancing takes place in the street, as well as the ceremonial preparation of food (see pls. xxxii., xli., xlii., and xliii.).

Small children, dogs, and pigs are, of course, exempt from every rule in Papua, and they very often adorn the main street.

A village consisted in olden days of two kinds of buildings—the family houses and the men's club houses, or *Dúbus*. Nowadays the latter class has almost completely died out in the Mailu district, though it still flourishes among their eastern neighbours, the Southern Massim. The houses and *Dúbus* were differentiated by their position in the village. The former stand transversally, ranged in two rows, each house with its long axis perpendicular to the line of the street. The *Dúbus* stood in the middle of the street, with their longitudinal axes coinciding with the median line of the street.(10)

The style of building of the houses and of the *Dúbus* was positively stated to have been also different, though this information refers to the village of Mailu only.(11)

The difference in structure between the ordinary houses in Mailu village and a *Dúbu* was that the latter was built in the Southern Massim style. That means that the ridge line of its roof was markedly concave, instead of forming a straight line sloping slightly downwards from front to rear. Again, the arrangement of piles which form the foundation structure is different in the case of the Mailu and in that of the Southern Massim. The Mailu house is described below, but I am not able to give a description of the Southern Massim style of building. The excellent picture of a Southern Massim house, given by Prof. Seligman *(op. cit.*, pl. liii.), will, however, be sufficient to show the difference referred to.

The tree houses, or tree platforms, described later (chap. iii., sec. 6) formed also another class of village buildings. These were only possible on the mainland, because there only existed trees high and strong enough for their support.

As temporary erections may be mentioned the ceremonial platforms made during the feast for the killing and distribution of pigs and for the *Góvi* dance (comp. chap. v., sec. 3); the small huts and shelters usually erected near the houses, on the beach, where people go to sleep during the stifling hot nights at the end of the dry season; and similar structures in the gardens and on distant points of the sea beach, which were used when gardening or fishing (such a shelter may be seen on pl. xxviii., fig. 2).

Sometimes the large canoes are used as houses. The platform is covered with a roofing of Nipa palm mats, and the shelter thus obtained is used as a dwelling-room. It is always so used whenever people go on distant and protracted visits (see pl. xxviii., fig. 1).

The sanitary arrangements near the villages are well regulated by custom, and carefully observed by both sexes. In the villages on the shore both sea and land are used for these purposes. In daytime, when people are not afraid to go a few hundred yards from the village, people utilize some thick patch of bush near the village, where a certain portion is always reserved for the women and another for the men. In Mailu those places are so sheltered by rocks and bushes that they are invisible either from the village or from any of the main approaches to it. Similar arrangements were said to exist in all villages. At night, when anybody would be too frightened to venture any distance from the houses, the sea is chosen.

---

(10) Comp. the plan of the Mailu village on page 512.

(11) The only *Dúbu*, which is built in the characteristic position in the middle of the street, is that in *Bórebo*, figured on pl. xxix., fig. 2. This *Dúbu* is built exactly in the same style as all the other houses, and I was told in *Bórebo* that in the olden days the *Dúbus* and houses were all built alike.

Village Community as Social Unit.—As said at the beginning of this chapter, the village community is a most important social unit in the tribal life of the Mailu. As a matter of fact, the village community is a body of people living perpetually, and normally, in very close contact, to the exclusion of all others—at least under ordinary conditions, feasts, trading visits, etc., being the exceptions. They see each other constantly, they co-operate in many ways, they are all on permanently friendly, and fairly intimate, terms, though the bonds between clansmen and kinsmen and those of personal friendship were very prominent within the village, and were by no means verged in the broader and looser ties of village solidarity.

Strangers are not often to be seen in the villages, even at present, and in olden days they must have been quite exceptional.

The difference between such a closely-linked village community, bound by permanent local proximity and by constant contact, and a community, even such as that of the Southern Massim who live in scattered hamlets, is undoubtedly very prominent, and although I had but a short time in which to study the Southern Massim, the effect of this difference was apparent.

Thus the village community is the local unit of the Mailu. It is also the real political unit. Both in aggressive and defensive warfare fellow-villagers would, of course, always fight on the same side, and in raids the whole male population would very likely take part as a single unit, though the war canoes were separately allotted to the various clans and subclans (see below next section, also chap. iii., sec. 6). Again, in the economic sense, the village community was the joint owner of land as far as certain rights were concerned; it was also the joint owner of fishing rights, and, though the hunting rights were subdivided among the clans, it was the village, as a whole, that possessed the final economic benefit of those rights, as far as actual consumption of the goods is concerned (comp. chap. iv., secs. 1, 2, and 3). In the legal arrangements and institutions the village very often functioned as one body, as one "legal person" (comp. the *Tóna góra* arrangements, or the *Nebúru* in the case of an influential man, chap. iii., sec. 5). Again, it was so in the giving of the feast, though the individuality of the clan then came strongly to the fore, especially in Mailu. The village as a body also played an important part (comp. chap. v., sec. 3).

Thus the village was the real πόλις of the Mailu man, and its limits formed the social horizon within which he moved.

3. THE *Dúbu* (CLAN AND SUBCLAN).

Description of Clan, Subclan, and their Relation; the Clubhouse.—The village community is not an entirely homogenous social body. It is divided into clans and subclans. These subdivisions possess a distinctly local character; the houses of a clan always form one block in the village, and usually there is a certain distance between the different blocks. The houses of a clan lie on both sides of the street, so that at one end of the village there is one clan, then after one has passed its houses one enters the next, and so on. In other words, the village consists of a series of local subdivisions ranged in a row.(12) The native name for a clan is *Aúra*, or *Dúbu*. The first name is as a rule used with reference to the rather large clans of Mailu village, where the term *Dúbu* is usually applied to the small subclans. On the mainland, where the clans are smaller than in Mailu, the term *Dúbu* is universally applied to clan, subclan, and clubhouse, which last is the original meaning of the word. Originally the word *Aúra* means side, spot, direction—it has the same meaning as the Motuan word *Káha*.

Each clan is, or more correctly was, connected with a house, or clubhouse of the men *(Dúbu)*, which stood in the middle of the street, between the houses of the clan. The style of this building has been outlined in the preceding section. No women or children were allowed to enter the *Dúbu*, nor was it safe for a stranger to go there without an invitation. The young unmarried men, after "initiation" (see chap. iii., sec. 4), used to sleep there, as also the widowed old men, and at times the married men made similar use of the *Dúbu*.(13)

Thus the clan was a local unit with the *Dúbu* as a symbol, so to say, of its individuality and independence, and it is not merely a figure of speech to say that the village was not a texture of *Dúbus* (clans and subclans), but a juxtaposition of these. The clans were really fairly independent, and the forces of social cohesion in a village community which bound the different clans together were much weaker than those holding together the members of a clan. Thus, whenever there were emigration, colonization, or gregarious shifting of people it was either a clan (or clans), or else a subclan (or subclans) that moved. Thus, for instance, in the two migrations which took place from Mailu, it was the clan of *Oraído* that moved to settle in Table Bay. Again, when the village of *Kurére* was founded in Mailu, several subclans of *Maradúbu* and *Moráu* moved there, no men of *Bodéabo* or *Urumóga* joining them.

---

(12) Comp. plan of Mailu village at the beginning of sec. 2 of this chapter.

(13) All the details referring to the various uses and functions of the *Dúbu* will be described below in their respective places.

The clans of the Mailu are exogamous; they are also patrilocal and with paternal descent. In other words, the wife always comes from outside the clan; she joins her husband, moves to his home, and the children belong always to the same clan as their father.

There is, however, no tradition of a common male ancestor of the clan, and as genealogies are seldom remembered beyond the third generation back, it is, of course, impossible to ascertain how far the clansmen are really related by blood.

The number of clans varies, and so does their size. Historical events, such as a raid in which one particular clan suffered exceptionally, or such as the exodus to *Kurére*, for example, in which two clans furnished the majority of emigrants, easily account for the varying sizes of the clans and for their unequal number.

There are four *Aúras* in Mailu village, each having had its *Dúbu*-house in the olden days.

The following names of clans and clubhouses, going from west to east, are enumerated:—

Clan name.	*Dúbu* name.
Moráu	*Agiu'óro*
Maradúbu	*Omou'óro*
Urumóga	*Dariavára*
Bodéabo	*Goise'óro*

To be added to these is the emigrated clan *Oraído*. The only clan name which seems to have a meaning is *Bodéabo*, *Bodéa* being the name of the south-east trade wind and of the easterly direction in general (comp. chap. iii., sec. 2). Curiously enough all the *Dúbu* names have a geographical derivation, thus *Agiu'óro* is originally the name of a hill on

Mailu Island; *O'mou'óro* is the table-shaped hill at the back of Table Point; *Dariavára* is a rock near *Oníbu* Point; and again *Goise'óro* is a rock on the island of Mailu.

There are five clans in the village of *Dérebai—Oraído, Boíladúbu, Góbu, Warátsa*, and *Abá'u*. I failed to record the *Dúbu* names.

In *Bórebo* village there are six clans—*Tírihi, Abá'u, Wó'u, Warúbo, Atsána, Gadóbo*. In this village there is one *Dúbu* house still standing in the middle of the street, while the *Dúbus* of all the other clans stand in line with the ordinary houses (see pl. xxix., fig. 2).

There are four clans in the village of *Banóro: Arúme, Oraído, Danó'a*, and *Bará'u;* and two in *Géagéa: Arítsa* and *Góbu*.

In *Loupóm* there were two clans:—

Clan name.	*Dúbu*-house name.
Góbu	*Lapilaóro*
Boimará'i	*Moguraóro*

Here, again, the *Dúbu* houses are named after some hills, *Oro* (in Mailu) meaning hill.

There seems to be always a headman in each clan, or, more correctly speaking, perhaps, a man of greatest importance, whose opinion commands a certain amount of respect, and who would act as the authority and representative on all occasions in which the whole clan was concerned. The position of such a clan headman was, however, far from being clear and well defined, and I think that in reality there was no clan headman as such, but that he was only either the most important and influential among the headmen of the subclans, or else the headman of the most important and influential subclan.

Each clan is subdivided into subclans, which are also local—that is, the houses of each subclan form a separate group within the clan's block. The subclan is also to a certain degree an independent social unit. As mentioned before, they are the units of cohesion in all cases when a village community splits up. Again, each subclan has its headman, whose position, functions, and authority within the subclan is very well defined; much better, indeed, than is the case with the headman of the clan.

It is obvious that the subclan is also patrilocal and patrilineal. But though I have recorded a considerable number of genealogies, I was unable to ascertain the actual relationship, by blood, of the members of any of the subclans of Mailu village.

These were the clans and subclans of Mailu village:—

Clan.	Subclan.	Clan.	Subclan.
Moráu …	*Bumadúbu*	*Urumóga*	*Bánagadúbu*
	Maraoraído		*Boíladúbu*
			Díadúbu
			Gónidúbu
Maradúbu	*Maradúbu*		*Gáradúbu*
	Díbodúbu		*Bára'idúbu*
	Bará'udúbu	*Bodíabo*	*Bodíadúbu*
	Mótsodúbu		*Aritsadúbu*
	Aritsadúbu		*Wáratsadúbu*
			Bánidúbu

I believe there were no subdivisions of the small clans in the mainland villages.

In order to make clear the relation between the clans and subclans, it must be first remarked that the latter are always subdivisions of the former. The main difference between a clan and a subclan was, first, that a clan had an independent *Dúbu*, whereas a subclan always had to share it with other subclans. Again, a clan would act as an independent unit in giving the big annual feast, *Madúna;* hence also it was called *Madúna dúbu*, in distinction to the other meanings of the word *Dúbu (i.e., subclan* and *club-house.)*

Sociological Character of Clan and Subclan.—As in the case of all other social groups, it is only the study of their respective functions which makes clear the relation between the clan and the subclan. Those functions will be described in detail further on, and I shall now only briefly enumerate them, so as to give the sociological contour of the two groups in question.

The social structure of the clan and subclan must be borne in mind: the subclan consists of a few houses, one of which is the "chief's house," and the house of the *Dúbu* headman. The clan consists of a few subclans, of which again one is the most important, and its headman occupies the somewhat ill-defined position of the clan headman.

The subclan is, or was in the past, the joint owner of the large seafaring canoes, the headman being the owner *en titre* (comp. chap. iv., sec. 4). Again, the large *Gaúma* nets are owned jointly by the subclan (comp. chap. iv., sec. 3).

The clan is, as often mentioned, the joint owner of the *Dúbu* and the real giver of the annual *Madúna* feast. The master of the clan was also master of the *Dúbu*. The feast was given by a clan as a whole (chap. v., sec. 3), but the various headmen of the subclans acted in turn as masters of the *Madúna* (comp. *ibid.).* Thus at feasts the individuality of the subclans was not entirely merged in that of the clan.

In the mainland villages the clan was the most important social group in connection with land tenure (see chap. iv., sec. 1), and the clan, as a whole, was the owner of the war canoes *(Bobóre*; see chap. iii., sec. 6). The unity of the clan was expressed in its being an exogamous group (chap. iii., sec. 3).

4. THE HOUSEHOLD AND THE FAMILY.—KINSHIP.

Household and Family.—The household and family are two very important units in the sociology of the Mailu. The distinction between the family and the household corresponds to that between family and what in comparative sociology is sometimes called "greater family." The term "family" usually denotes merely a married couple and their children, such as are not independent. By "greater family" is meant the group consisting of a married couple, all their children and grandchildren. The house, among the Mailu, is usually tenanted by as many generations as there are alive in the male line, and if there are several married, grown-up brothers they usually occupy the same house. Thus the "household"—the group consisting of the occupants of a house—corresponds broadly to the "greater family."

I have made a genealogical census of the Mailu village, drawing genealogies of the inmates of each house. The results may be summed up as follows:—Every house is habited by people related by blood on the agnatic side and by women married to members of the family. The children always live with their parents. Nowadays they continue to live in the paternal house, the girls till marriage, the boys indefinitely. In olden days the boys moved to the *Dúbu*, or clubhouse, after puberty, and remained there until their marriage. After marriage the man, in former times, lived in the same house with his parents, his wife joining him. This is also the present state of things. If there are several sons in the family, two or three would live in the paternal house, the others building a new home.

Thus, as stated above, three generations, comprising several families, may form a Mailu household. In a few cases only a house is occupied by a single family—a married couple and their children. Usually two or three, sometimes as many as four or five, families live in one house.

The ownership, or "mastership," of a house is hereditary in the male line, the eldest male of the household being always regarded as its "master" *(Gubína)*. Of course, this title does not confer any special economic privileges upon a man; in spite of which, however, the natives attach to it a certain importance, and are never in doubt as to who is the master of a house (comp. chap. iv., sec. on Property and Inheritance).

As the house is the scene of family life, this is the proper place to give its description.

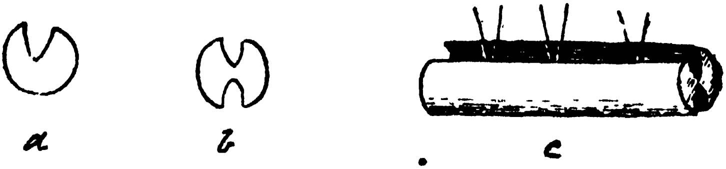


Fig. 1. Showing the Mode of Preparing Boards.

a. The trunk in section; a deep longitudinal groove has been scooped out on one side.

b. A second groove has been cut on the opposite side.

c. The trunk split in two halves with three pairs of poles, wedged into one of the grooves. The two halves are subsequently planed with an adze.

Houses and House-building.—The Mailu houses are built on piles on dry land. They comprise two compartments—an upper room, formed by the upper floor and by the oval-shaped thatch, and the lower verandah, roofed by the upper floor and open on all four sides (comp. figs. 3 and 4; also pl. xxviii., fig. 2, and pl. xxx., fig. 2). The upper room is practically closed all round, there being no windows or doors, access being gained by a small opening in the floor, where one climbs up by a ladder (the opening and ladder have not been shown in the diagrams, figs. 3 and 4). The lower verandah is overhung by the thatch, forming fairly long perpendicular eaves; it may also be sheltered on any side by portable screens, made of pandanus mats *(Elaki)*, plaited coconut leaves *(Tsináu)*, and reed mats *(Eba)*, the latter being the kind used for sails. (The verandah in the house on pl. xxx. is partially screened with mats.)

Both the verandah and the upper room are used as general living places. The household members sleep, have their meals, cook the food, and do their work either in the lower or upper compartment—according to the weather. Of course, when engaged in work the people prefer to sit on the verandah because the upper compartment is dark; whereas they sleep usually in the upper room. But there is no sharp division of functions between the two parts of the Mailu house, both serving broadly the same purposes, according to circumstances.

From the point of view of construction, the house consists of three practically independent parts, each possessing its own foundations and each being scarcely connected in structure with the two others. The lower floor, or verandah, rests on eight to ten thick fairly-short piles (about 1·50 m. high); the upper floor rests on the six main piles of the building; the roof is supported by two wooden pillars, slenderer than the

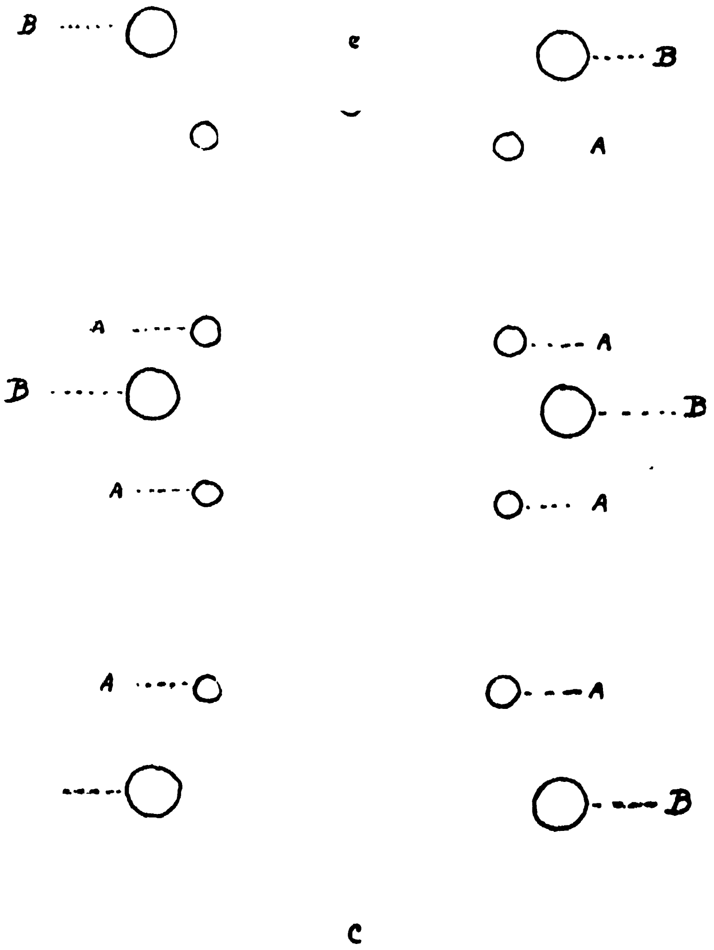


FIG. 2. GROUND PLAN OF HOUSE PILES.

A. Piles of the lower floor, or verandah *(Dóu dogóta)*.
B. Piles of the upper floor (main piles; *Dogóta)*.
C. Piles, supporting the roof.

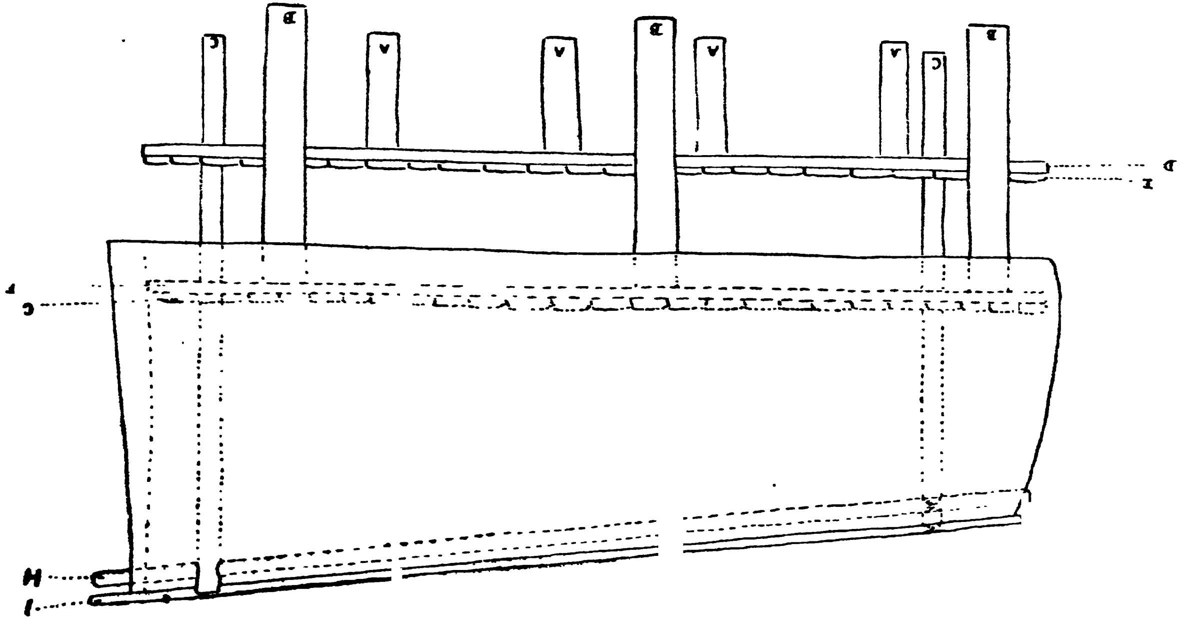


FIG. 3. LATERAL ELEVATION OF THE HOUSE.

A. Piles of the lower floor or verandah *(Dóu dogóta)*.
B. Piles of the upper floor (main piles; *Dogóta)*.
C. Piles supporting the roof *(Góragóra)*.
D. Longitudinal poles, on which the lower floor rests *(Dóu búi*
E. Lower floor *(Dóu)*.
F. Poles on which the upper floor rests *(Otu)*.
G. Upper floor.
H. Lower ridge-pole *(Dagíra)*.
Upper ridge-pole *(O'úre)*.

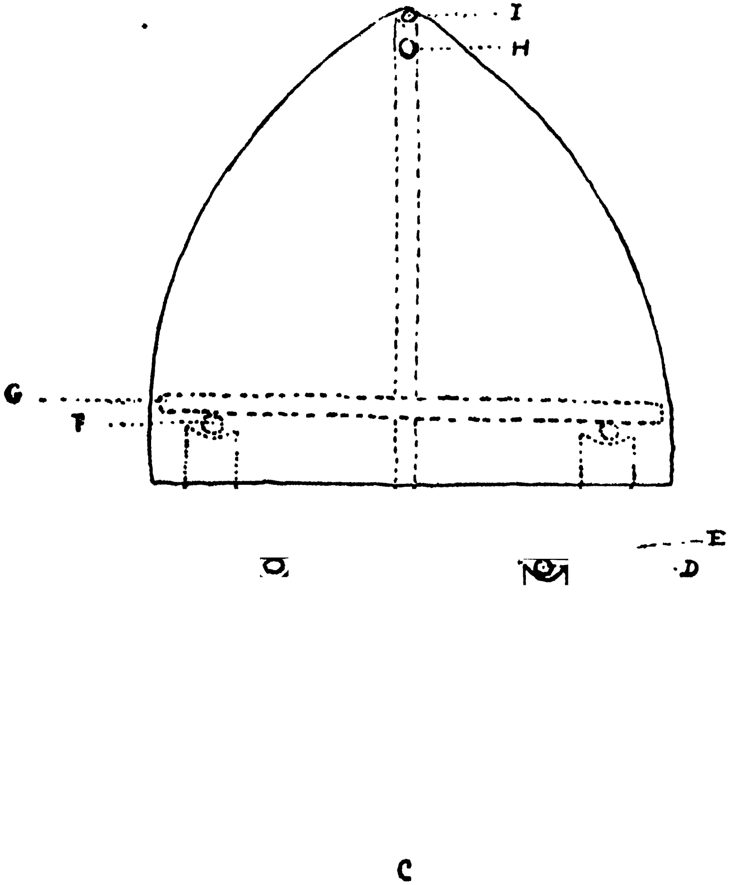


Fig. 4. Front Elevation of House.

A. Piles of lower floor, or verandah *(Dóu dogóta)*.

B. Piles of the upper floor (main piles; *Dogóta)*.

C. Piles, supporting the roof *(Góragóra)*.

D. Longitudinal poles, on which the lower floor rests *(Dóu bútsi)*.

E. Lower floor *(Dóu)*.

F. Poles, on which the upper floor rests *(Otu)*.

G. Upper floor.

H. Lower ridge-pole *(Dagíra)*.

I. Upper ridge-pole *(O'úre)*.

main piles and much higher (comp. figs. 2, 3, and 4). The order of construction is as follows:—First, the six main piles are sunk; then, before the upper floor, which rests on these six main piles, is laid, the lower platform or verandah is made, its size and position being determined by that of the six main piles (hence the reason for its subsequent construction). The men can now stand on the lower platform or verandah and carry out the construction of the upper floor. When this is finished the builders have a scaffolding ready for the making of the roof. Thus they are able to construct the whole house, which is a fairly high erection, without the necessity for making a special scaffolding of any description.

The preparatory work of supplying the material for construction (the posts, poles, and boards) was undoubtedly the most difficult part of the task, especially in olden days, when everything had to be done with stone implements. There is also a great difference between the material employed nowadays in the construction of the houses, and that used previously, the better tools now available enabling the native to obtain timber much superior to that which was previously used.

The six main piles had to be cut in the bush and brought to the village, as well as the two higher ones which support the roof, and the eight to ten short piles for the verandah. The preparation of the boards was still more laborious in olden days. A tree had to be cut down: a deep and fairly narrow longitudinal groove was then scooped out (comp. fig. 1*a*). After that the log was turned upside down so that the groove was now underneath, and another longitudinal groove, opposite the first one, was scooped out (fig. 1*b*). Then, with the aid of three pairs of poles wedged into one of the clefts, the log is levered asunder (fig. 1*c*). The tree trunk has now been split in halves, and the resulting two, fairly thick, logs were subsequently planed by thin broad adzes—the type most approaching the fine ceremonial blades.

Besides the piles and the boards a number of, more or less, thick poles is necessary in the construction of the house, and a sufficiency of sago leaves is collected to be used for making the thatch.

The piles and boards of the recently-made houses are made of the fairly hard *Bedila* tree. In olden days the much softer timber of the *Dubúna* tree was used for boards, and the piles were made either of *Móda* tree wood in the better houses or of coconut palm trunks in the inferior ones. The thinner poles and stakes are, and were, made of red mangrove. The preparatory work was by no means easy. On Mailu Island, where the natives had to fetch everything from the mainland, the preparations might (according to my native informants' estimate) take as much as two to three moons' time. Of course, this implies the native rate of working, which is not very fast.

After the material had been collected the natives proceed to the construction of the house. As mentioned, the first thing done is the implantation of the six main piles (they are

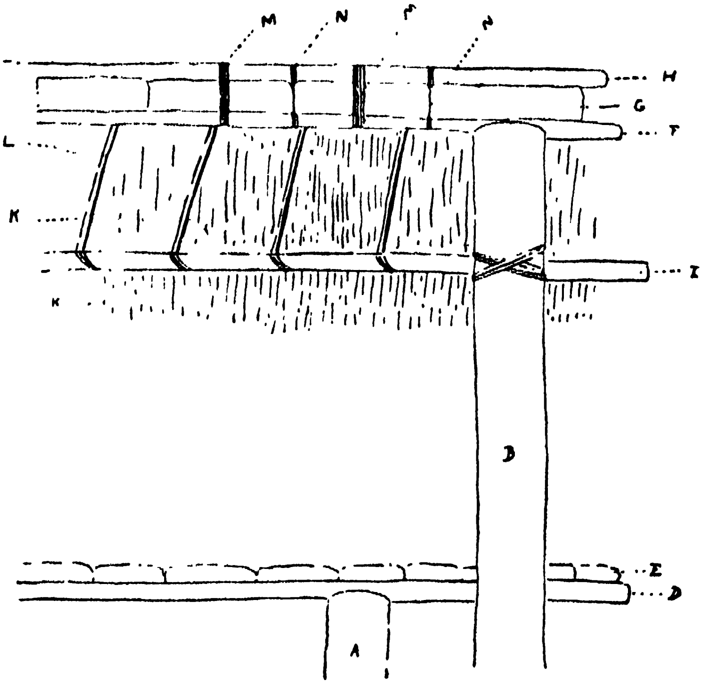


Fig. 5. View of a House in Vertical Section from within, showing construction of lower and upper floor.

A. *Dóu dogóta* (verandah piles).
B. *Dogóta* (piles of upper floor).
D. *Dóu bútsi* (horizontal supports of the verandah planks).
E. Planks of the verandah or lower floor.
F. Poles on which the upper floor rests *(Otu)*.
G. Planks *(Wawá'u)* of the upper floor, lashed to the *Otu* and *Abába*.
H. *Abába*, longitudinal pole, parallel to the *Otu*.

M and N show the mode of lashing the planks to the *Otu*; at M holes have been drilled in the planks for the purpose of the lashing. N indicates an interstice between the planks, which has been used for passing the cane.

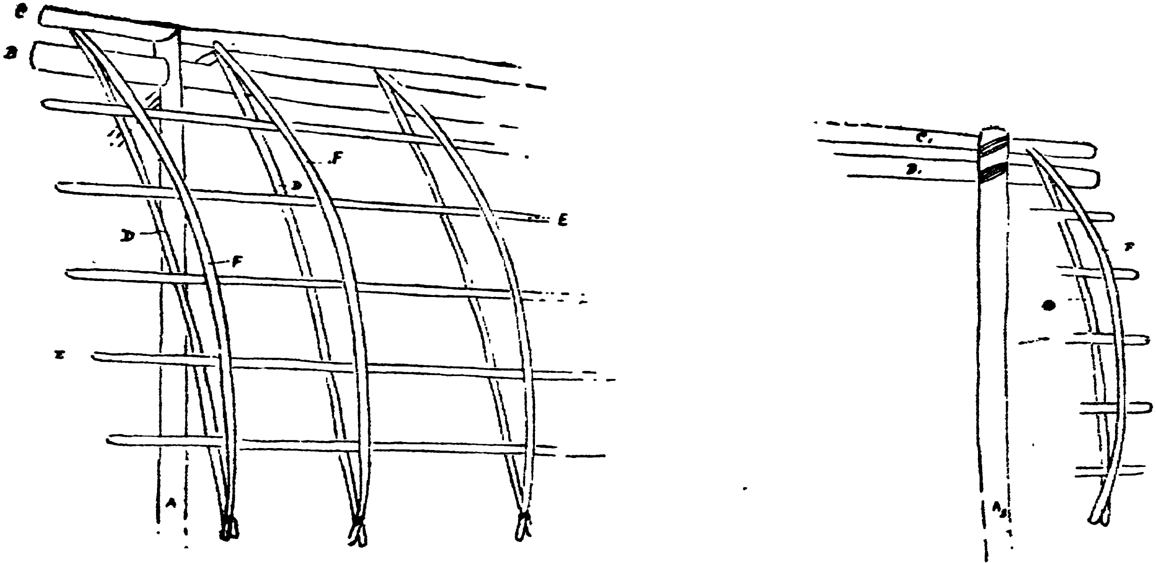


FIG. 6. FRAME WORK OF THE THATCHED ROOF.

A, A_1 The two piles, which support the roof *(Góragóra)*. The front pile (A) is higher than the rear one (A_1).

B, B_1. Lower ridge pole *(Dagíra)*.

C, C_1. Upper ridge pole *(O'úre)*.

D, D_1. Ribs or rafters of the inner framework *(Dáeló'u)*.

E, E_1. *Dereána*, roof battens.

F, F_1. Outer rafters *(Ló'u)*.

called *Dogóta)* in deep holes, about the depth of a man's height.[14]

The work of sinking the piles is done by many men, who help the owner.[15] It is thus done quickly, the work being finished in about a day. After that the lower platform, or verandah *(Dóu)* is erected. The eight or ten short piles *(Dóu dogóta)* are sunk, but only to about half the depth of the *Dogóta*. On the slightly concave tops of the *Dóu dogóta* rest two long poles *(Dóu bútsi)*, running the whole length of the house, and on those the boards *(Dóu wawá'u)* are laid. Neither are the *Dóu bútsi* attached to the piles, nor are the boards secured in any way to the *Bútsi*. They simply rest one on top of the other. The boards of the verandah are moreover much inferior to those of the upper floor.

Standing on this lower platform, the builders construct the upper floor. This is done, of course, much more carefully, any insecurity or unsteadiness in this part of the house being considerably more dangerous a matter than in the case of the verandah.

The construction of the upper platform is, in principle, quite identical with that of the lower one, the difference being that the single joints are fastened together and not merely superimposed. There are also two longitudinal poles resting on the concave tops of the six main poles. And on these the boards are transversely placed and firmly lashed. The two longitudinal poles *(Otu)* are not fastened to the main piles, but rest securely in the carefully cut concavities in the top of the latter. The boards *(Wawá'u)* are laid in close juxtaposition and with their ends well trimmed, so that the upper floor presents a regular rectangle, bounded on each side by regular straight lines. The fastening of the boards to the *Otu* is made by means of another longitudinal pole *(Abába)*, thinner than the *Otu*, laid on top of the boards, parallel to the *Otu*. Holes are drilled in the boards and through them, as well as through the spaces between any two boards, the *Otu* and *Abába* are lashed to each other with split lawyer cane (fig. 5).

Thus the lower and upper platforms are ready. The native architects proceed now to the construction of the roofing (see fig. 6). Through two pair of holes cut in both platforms the two roof-supporting poles *(Góragóra)* are passed and sunk into the ground. Standing on the upper platform, the men can construct the framework of the thatching. In the loftier houses, however, it is necessary for a man to stand on a thick log of wood—about a metre high—in order to fix the two main ridge-poles of the roofing. The upper ridge-pole *(O'úre)* is much slenderer than the lower one *(Dagíra)*. Both poles are passed through the front pile and are lashed to the rear one (fig. 6). The front pile is as a rule higher, hence the sloping profile of the roof. The *Dagíra* (lower and stouter ridge-pole) is passed through a hole cut in the front *Góragóra*, the *O'úre* (upper ridge-pole) rests on a concavity in the top of the front pile. Both ridge-poles are very close to each other, some 10 to 20 cm., only, separating them. The two poles are, however, not fixed simultaneously. After the *Dagíra* is put in, and before the *O'úre* is fixed, the inner frame of the roof is constructed.

---

[14] The Motu, in constructing their pile dwellings in the sea, sink piles by pointing them at the lower end and driving them into the mud of the seabottom by a rotatory motion. Two ropes are lashed to the top of the pile, so that the four ends radiate at right angles in four directions. By pulling on these four ends, the rotatory motion is imparted.

[15] Comp. chap. iv., sec. 5.

This consists of a set of transversal ribs (technically rafters, *Dáeló'u)* running from the *Dagíra* down to a longitudinal pole, parallel to the *Dagíra*, which is fastened to the main poles about a metre or so below the upper floor (this pole is also called *Abába*—the general name for long, thin mangrove poles). The rafters lie close to each other, and I counted fifteen in a house of average size. On these rafters longitudinal poles (technically roof battens, *Dereána)* are fixed, running, of course, parallel to the *Dagíra* and *Abába*. There were five *Dereánas* in the same house in which I found fifteen *Dagíras*. This framework of rafters and roof battens, made of fairly thin, flexible poles of red mangrove, constituted the inner skeleton of the thatching. The *raison d'être* of this double frame for the roof is, as far as I am able to judge, to give an additional strength to the sago thatch, which has often to stand a considerable stress of wind. It is also this form of construction which enables the natives to give the Gothic arch profile to their houses. It would be impossible to fix the first (inner) set of rafters giving them the full curvature; indeed they are much less bent than the outer set of rafters (called *Lóu)*. These are attached on top between the *Dagíra* and the *O'úre (i.e.*, between the two ridge-poles), and to the *Abába* below. Thus they start and end at the same points, as the inner rafters, passing on the outer side of these. Hence the greater curvature. The thatching *(Ato)* made of sago palm leaves, folded half length and stitched together, is attached to the outer rafters. The men begin at the top, and for this work again require to stand on some elevation (usually a log of wood). Thus the slopes *(Déri)* of the roof are made. The two gables *(Babágu)* are made subsequently, the thatch being fixed to a framework of rafters and battens, the former radiating from the top of the gable, the latter being placed obliquely (as in the diagram). The rafters are attached at the top to the ridge-poles and at the bottom to a horizontal pole *(Babágu ána)*.

The front of the house *(Itsári)* is, as mentioned, higher than the rear *(Díni)*. The front is also ornamented. Access to the house is usually gained through the front, on which side the facilities are much better.

In very small houses access to the lower platform (verandah) is gained directly by means of a sloping log, which serves as a ladder. In all the larger houses, however, there is an intermediary platform *(Aúna dóu)*, or there may be two, in which case the sloping log leads to the first and lower one. Such platforms rest on four piles (called *Aúna dóu dogóta)*, which are usually thick and not very well finished or deeply sunk. In some houses, though not in all, an oblique stake, serving as a ladder, is also placed at the rear of the platform.

The access to the upper compartment is gained from the verandah by a trap door *(Urunóga)*, an opening in the roof of the verandah or upper floor some two to three metres from the front, a ladder leading from the lower to the upper platform. The ladder *(Orábo)* consists of a board with pear-shaped holes cut out.

The house decorations consist of carvings done on parts, of pendants hung along the eaves, especially on the front gable, and of pigs' jaws or fish tails bound to the front roof pile and to the front *Babágu ana* (horizontal pole running along the thatch eave in the front). The carvings are done on the front end of the *O'úre* (top ridge pole) which projects beyond the front gable, as well as on the ends of the *Dereána* (longitudinal roof battens). The carving resembles, roughly, fish tails and snakes' heads, but the natives do not so identify them, saying that they have no meaning, and are only traditional designs. The outer sides of the six main piles are carved, the pattern consisting of several parallel rows of four-sided pyramids. The same "crocodile skin" pattern is carved on the roof of the verandah (under aspect of the upper floor). In two or three houses in *Mailu* village, in one house in *Kurére*, and in one house in *Dérebai* there were large crocodiles carved at full length of some two to three metres in very deep bas-relief.

The pigs' jaws and other remains of feasts are perhaps the most characteristic decoration in all Western Papuo-Melanesian tribes.

Kinship.—In the house the members of the agnatic "greater family" live in close contact. The parents are extremely fond of their children, nurse them carefully, fondle them and play with them (comp. chap. iii., sec. 4). The communism in the supply and preparation of food and in the common meals, the communism in objects of daily use—all these contribute to the establishment of bonds of kinship between the members of the household—*i.e.*, between the members of the agnatic or greater family. Brothers living together, or a paternal uncle and his nephews living in the same house were, as far as my observation goes, on much closer terms with each other than relatives of similar degrees living apart. This was evident whenever there was a question of borrowing things, of getting help, of accepting an obligation, or of assuming responsibilities for each other.

The paternal authority over the males soon becomes very weak (comp. chap. iii., sec. 4), but I was not able to ascertain to what extent this was conditioned by the pre-European custom of sending the boys to live in the *Dúbu*. The father's rights over the female children persist even after their marriage in the form of the gifts of pigs which he receives regularly, and which entail the obligation of returning them (comp. chap. iii., sec. 3).

The bonds of kinship find at the same time a very strong expression and enhancement in the custom of *Vevéni*, which entails an extensive communism in food (comp. chap. iii., sec. 1).

The classificatory terms of kinship are very similar in their main features to those found among the *Koíta* by Dr. Seligman.(16) In the following table I have adopted the mode of presentation recommended by Dr. Rivers in the "Notes and Queries." The letters in parentheses are to be read:—m.s. = man speaking; w.s. = woman speaking.

Father = *Abá'i.*
Mother = *Adé'i.*
Son or daughter (m.s. and w.s.) = *Oeva.*
Elder brother (m.s.) = *Uíniégi.*
Elder brother (w.s.) = *Uíniégi.*
Elder sister (m.s.) = *Uíniavétsa.*
Elder sister (w.s.) = *Uíniavétsa.*
Father's brother (elder or younger) = *Abá'i.*
Father's brother's wife = *Adé'i.*
Father's elder brother's son = *Uíniégi.*
Father's elder brother's daughter = *Uíniavétsa.*

---

cit., pp. 66 and 67.

Younger brother (m.s. and w.s.) = *Raú'égi* or *Nábu.*
Younger sister (m.s. and w.s.) = *Raú'avétsa* or *Nábu.*
Father's younger brother's son = *Raú'égi* or *Nábu.*
Father's younger brother's daughter = *Raú'avétsa* or *Nábu.*
Father's sister (younger or elder) = *Aíbo.*
Father's sister's husband = *Aúe.*
Father's sister's son = *Naí'égi.*
Father's sistor's daughter = *Naí'avétsa.*
Mother's sister = *Adé'i.*
Mother's sister's husband = *Abá'i.*
Mother's sister's son (elder) = *Uíniégi.*
Mother's sister's daughter (elder) = *Uíniavétsa.*
Father's father = *Ová'i.*
Father's mother = *Ová'i.*
Mother's father = *Ová'i.*
Mother's mother = *Ová'i.*
Mother's brother = *Aúe.*
Mother's brother's wife = *Aíbo.*
Brother's child (m.s. and w.s.) = *Oeva.*
Husband's brother's child = *Oeva.*
Wife's brother's child = *Oeva.*
Sister's child = *Oeva.*
Wife's sister's child = *Oeva.*
Mother's younger brother's child = *Nábu.*
Son's child (m.s. and w.s.) = *Natáni.*
Daughter's child (m.s. and w.s.) = *Natáni.*
Great grandfather (pat. and mat.; m.s. and w.s.) = *Goína.*
Husband = *Eme* ("My husband" = *Inéme).*
Wife = *Avétsa* ("My wife" = *Inavétsa).*
Wife's father = *Evai'égi.*
Wife's mother = *Evai'avétsa.*
Husband's father = *Evai'égi.*
Husband's mother = *Evai'avétsa.*
Daughter's husband (m.s. and w.s.) = *Botsía.*
Son's wife (m.s. and w.s.) = *Táma.*
Wife's brother (elder or younger) = *Naivágu.*
Wife's sister (elder) = *Uíniavétsa.*
Wife's sister (younger) = *Nábu* (not *Raú'avétsa).*
Sister's husband (elder or younger) (m.s.) = *Naivágu;* also sometimes called *Goína* (term applied to great grandfather).
Elder sister's husband (w.s.) = *Uíniégi.*
Younger sister's husband (w.s.) = *Nábu.*
Husband's brother (elder) = *Uíniégi.*
Husband's brother (younger) = *Nábu.*
Elder brother's wife = *Uíniavétsa.*
Younger brother's wife = *Nábu* (not *Raú'avétsa).*

Husband's sister (elder and younger) = *Naivágu.*
Elder and younger brother's wife (w.s.) = *Naivágu.*
Wife's elder and younger sister's husband = *Itsigoína.*
Husband's elder and younger brother's wife = *Múnigoína.*
Son's wife's parents = *Veáni.*
Daughter's husband's parents = *Veáni.*

These are the classifactory terms of relationship of the Mailu. It must be, however, noted that although the term for elder brother, *Uíniégi*, for instance, comprises more people than we would design in our so-called descriptive system, it is by no means comprehensive of all the members of the village community, or even of the clan, which would, were it possible to trace their kinship, fall into the classificatory category of "elder brothers." In other words, if we should take the village community, or the clan, or even the subclan, and ask our informants (*ex hypothesi* a member of this group) to classify those men according to their relationship to him, he would be unable to do it. He would pick out a certain number of men and design them by appropriate kinship terms. Of the rest he would say that they are no relations of his. The "classificatory" system of kinship does not classify the man's community nor his clan, nor even his subclan, according to their degree of relationship. Only such people as a man is actually able to place in his pedigree are designed by kinship terms. As the Mailu man is not able as a rule to trace his genealogy beyond his grandfather, the range of the classificatory terms is not very wide.

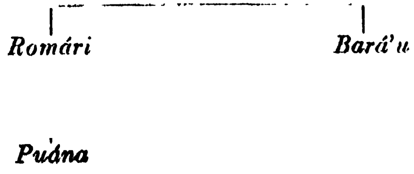
It is true that in addressing each other the natives use the terms of kinship within a much wider range, comprising practically the whole community and, *a fortiori*, the subclan and clan. Whoever is not addressed by one of these terms is spoken at as *Gaídi*—a word corresponding to the Mailu *Turágu* and meaning "intimate friend." It must be noted, however, that the terms of relationship used in such a broad sense are really "terms of address" merely. The difference between their strict use and their broad use as "terms of address" is essential. In the first case they express an actual social relationship, which is rooted in the mode of living (membership of the household and of the subclan), in the economic relations (comp., *e.g.*, the *Vevéni* custom, inheritance, forms of work, etc.), and in certain ceremonial duties and obligations (comp., *e.g.*, mourning). As terms of address, the classificatory terms of kinship are only the expression of a certain feeling of *étiquette*, which compels two people engaged in a friendly conversation to exaggerate the intimacy of their relationship and to consider the use of personal names as a disrespectful act.

Again, it must be emphasized that even within the narrower limits of their application—*i.e.*, as far as they are traceable genealogically—the terms of kinship do not imply that the native's attitude of mind and his social relation to all the people designed by the same term is exactly identical. Both in the ideas and feelings of the natives, and in their customary regulations the "own" brothers or parents occupy quite a different position to the cousins or uncles, although the former are designed by the same words as the latter. Thus, for instance, in the customs referring to mourning the "own" brothers would be the more important of the chief mourners, and they have also the whole benefit of the native rules of inheritance (comp. chap. iv., sec. 6, and chap. v., sec. 4). The expression used in Motu to design the actual relationship by blood, in opposition to the purely titular terms of address, and also to discriminate the "own" brothers and sisters from the collateral ones, is:—*Bóga* (belly) *támona* (one), meaning "born of the same woman." I was told by my own Mailu informants that exactly the same expression is used in Mailu: *Tsínai* (belly) *omubúa* (one).

The general expression for kindred, corresponding to the Matuan word *Váravára*, is in Mailu: *Emegi* (men), *goína* (great grandfather), which might perhaps be translated: "people belonging to the ancestor." The relatives by marriage are called *Múnimúni* (marriage) *aúra* (side) *emegi* (men).

The real, or own, father is designed by the expression *Abái* (father) *gubína* (chief or master), which may be translated "the chief or main father." This expression would be used to answer or put a question: "Who is this man? Is he your *real father?*" It would never be used as a term of address. The father's elder brother is spoken of and addressed as *Uíniabá'i;* the younger one as *Raú'abá'i.* Those terms would be used only when stress is laid on the distinction, both in speaking of the father and uncles and in addressing them. If the father and one of the uncles were present the father would be addressed as *Uníabá'i* or *Raú'abá'i*, according to whether he was the elder or younger of the two.

A concrete example, illustrated by the following genealogy, will make it clearer:—



If *Romári*, *Puána's* father, and *Bará'u*, *Romári's* younger brother, were present, and *Puána* were to call out "*Inabái*, my father!" both would answer. If *Puána* wanted his father he would then specify his call, and say, "*Uíniabá'i!*" (and not "*Abái gubína!*") But if he were asked by someone present, "Who is that man?" he would say, if *Romári* was designed, "*Abái gubína*"; if *Bará'u* was meant, he would say, "*Raú'abá'i.*"

I asked several of my informants who were a man's nearest kinsmen, and all agreed without hesitation that the man's own brothers (the sisters were not included) were his nearest—his real—relatives; speaking in Motu, they used the expressions: "*Váraváre gaubádabáda; Váraváre kórikóri.*" This view, held privately by individuals, is entirely in agreement with the "customary or social view," as it might be called, embodied in the rules of inheritance and in the mourning customs (comp. the respective paragraphs:—chap. iv., sec. 6, and chap. v., sec. 4).

Some of my informants, though not all, also said that the mother is the nearer relative of the child than the father, pointing out that the child is born of the mother. This view is also endorsed by some of the customs (comp, *e.g.*, mourning customs), though it stands in contrast with the fact that the man is undoubtedly at the head of the household.

Certain relatives cannot be addressed by their own names, and their names are taboo when they are not present (comp. chap. iii., sec. 3). Thus the names of the father and of all his brothers are taboo (*Góra*). The same is the case with the mother and her sisters. In general, the names of all the relatives of all the previous generations (grandfathers, uncles, aunts: *Ovái, Aíbo, Aúe*) are *Góra*. Nobody would address them with their personal names nor pronounce them in public. The same *étiquette* is applied also to the other members of the community who belong to generations older than that of the speaker. It was considered very discourteous to address such a person by his, or her, personal name. A classificatory term of relationship would be used in such cases. Again, if the man was a stranger, some term of respect was used. The Motuan, and generally Melanesian, word, *Taúbáda* (great) is now used all along the coast as such a term of respect.

The brothers, sisters, children, and grandchildren were called, addressed, and spoken of by their personal names.

CHAPTER III.

TRIBAL LIFE.

1. Daily Life.

Division of Daytime.—The natives divide their day into several periods, determined, of course, and mostly named, by the position of the sun.

Morning is called *Dába* (17); the time at, and after, sunset, *Valavítsa;* evening, *Vagarútsa;* night, *Gárugubáre.* The other periods are called after the respective position of the sun (*Nína*, in Mailu).

Thus, to summarise all the names in their consecutive order: —

1. *Dába aioietsa* or *Dába kivonai* = early morning.
2. *Dába* = morning.
3. *Nína atsanaravaina* = time before mid-day.
4. *Nína atsá'i* = mid-day and early afternoon—that is, whilst the sun is high.
5. *Valavítsa* = late afternoon, about sundown.
6. *Vagarútsa* = evening, early part of the night.
7. *Gárugubáre* = deep night.

The *Dába* and *Valavítsa* times are the busy ones. The natives do not like to do any work during the hot hours of the day, and even during the feasts the mid-day hours are devoted to siesta. This is, of course, not a hard and fast rule.

Sleeping.—There are no fixed times for going to sleep or for rising. As a rule, the natives go early to bed and are early risers. But when there is dancing or night fishing, or any other nocturnal occupation, they remain up till late into night.

They sleep, during the cooler season, in the upper part of their house, under the sago palm thatch. During the change of the south-east trade wind into the monsoon (October to December) they spend the hot nights on the lower open platforms, and very often they sleep under small shelters erected near the houses. There are no bedsteads in their houses, only mats spread upon the floor. For pillows they use short, and rather thin, logs. I never saw any of the carved wooden pillows, as used on the north-eastern coast.

Toilet, Dress, and Cleanliness.—They have, in general, no regular times for washing or making their "toilet," but they bathe fairly often in the sea (coastal natives) or in creeks (inland *Mágí*). They also wash with *Dehoro*, the fluid prepared by moistening scraped coconut and squeezing out the mess, which also plays a very important *rôle* in native cookery. The bathing in the sea or creeks seems to be generally due to the desire to get cool rather than to a craving for cleanliness. But undoubtedly they often bathe in order to cleanse themselves, as, for instance, when they remove the mourning or ceremonial dirt. Besides these occasions there is no ceremonial bathing, or no presumption of cleanliness on ceremonial grounds, but the natives generally rinse their hands and mouths with sweet, or salt, water after every meal. As a rule, the natives are fairly clean, and they hardly ever shock the eye or the olfactory sense, except when they are obliged to keep dirty, as in the cases just mentioned.

---

(17) The same term as in Motu.

They have, of course, a characteristic smell, but this is by no means strong or unpleasant. In the way of artificial scents they use several kinds of aromatic herbs, which they put in their armlets. The most popular of these has, to the European nose, a strong and decidedly offensive smell. Some of these herbs are cultivated by the natives in their gardens, and they are used indiscriminately by both sexes. The testes of the cuscus are also used as perfume, and are placed in armlets or necklets.

As mentioned above, they use the coconut to anoint themselves, and this gives to the natives one of the predominant, but by no means unpleasant, smells. They never use pigs' fat for anointing themselves, and indeed they seem to have a certain horror of getting greasy with this fat.

The care of the hair is one of the most important toilet activities with the natives, and squeezed coconut, which is smeared all over the body, is especially used as a shampoo.

In mourning the men shave their hair. Otherwise they let it grow until it forms the large, mop-like *chevelure* which is so characteristic of the Papuo-Melanesian. This mop is left with its natural contour, except when they dress up for dancing, on which occasions it is bound and decorated in various ways. Individuals with wavy hair are exceptional, and I never saw in the Mailu district any person with the woolly, close-cropped hair characteristic of the Papuans. Nor is their hair ever plaited with mud or grease, as is done in some parts of the Territory.

To keep the hair in order they employ a comb, which they normally carry in their hair (except when in mourning), thus using it as a decoration. The comb *(Pé'e)* consists of a piece of wood (from 15 in. to 30 in. long). It is split at one end into several teeth, which are kept apart by a string passed between them. Another piece of string tied round their base keeps them together. The other end of the comb serves as a handle, of which the most usual forms are a plain long one, in which case the comb is called *Pé'e gági;* and a shorter carved form called *Pé'e úru.*

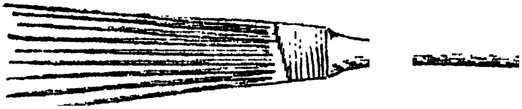


FIG. 7. NATIVE COMB WITH PLAIN HANDLE *(Pé'e gági).*
This is one of the most common forms.

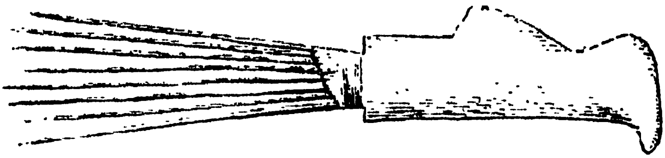


FIG. 8. *Pé'e úru*: ANOTHER VERY COMMON FORM OF NATIVE COMB,
showing a characteristic motive in the shaping of the handle. ("Bird's head" motive imported from the Southern Massim [?].)

There are other and more ornamental forms of handle (coming probably from the eastern culture area), having a long elastic handle-end and decorated with banana seeds ⁽¹⁸⁾ *(Gúdu)* and pandanus leaf pendants, or with the handle covered with string. But these are very seldom seen, and then only on festive occasions. The comb is put into the man's thick hair close to the temples, in a horizontal plane, the handle usually pointing forward or slightly to the side. The comb is so solidly fixed in the hair that it sometimes serves to support a considerable weight of feather ornaments during the violent exercise of native dancing. The feather ornaments worn by the men, as shown in pl. xxxi., fig. 1, are attached to combs.

Ordinarily the *Pé'e* is used to comb the hair and keep it in order, though the men occasionally use it to scratch the scalp.

Depilation is done by pulling out the facial hair and by shaving the scalp. The pulling out is done by means of a small pumice stone *(Imúta;* in Motu, *Dahúru);* the hair, being gripped between its rough surface and the thumb, is pulled out by a jerk. Another way to perform the operation is by means of a fibre *(Bóra;* in Motu, *Répo)* of a garden

---

(18) Wild banana *(Musa ensete).*

plant.(19) A loop of this fibre held close to the hairy surface is twirled round so that the hair gets entangled, and can then be jerked out. No hair on the body was removed by the Mailu.(20)

The shaving is done with thin, sharp obsidian *(Nabúa)* flakes, obtained in the following way. A piece of obsidian is placed in the hollow of the left hand with an edge pressed against the palm, near the commencement of the wrist. This edge is struck with another stone in a plane perpendicular to it and at a rather sharp angle.

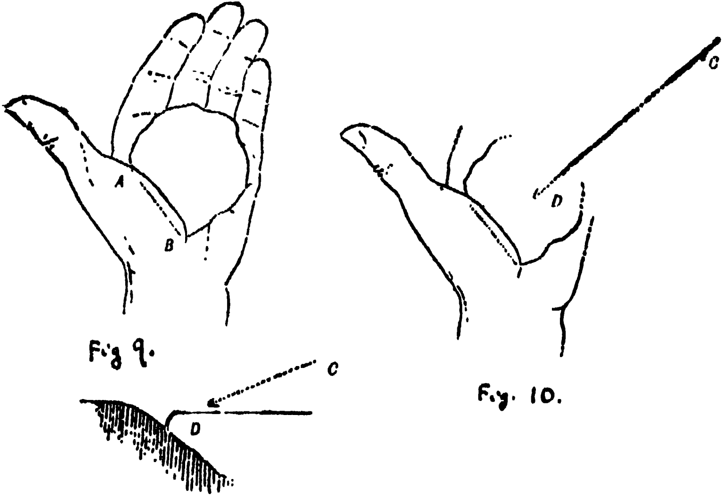


Fig. 9. Fig. 10. Fig. 11.

Showing Method of making Obsidian Flakes.

Fig. 9. The line A B indicates the position of the edge of the piece of obsidian, resting against the palm.

Fig. 10. The line C D shows the direction in which the striking-stone moves.

Fig. 11. Shows the obsidian core in section, with the trajectory (C D) of the striking-stone, which moves towards the edge D.

The obsidian splinters and yields, usually, several small, sharp, thin flakes. These are used as razors, and with them shaving is performed apparently with ease by the barber, and comfort to the person shaven. No equivalent for soap is used. Recently the introduction of bottles has greatly reduced the demand for obsidian, which has to be traded from the north-eastern coast.(21) Conservative experts, however, praise the superior sharpness and elasticity of the obsidian razor as compared with the best flaked bottle glass.

---

(19) The Motu of *Hanuabada* bring the *Répo* from the gulf as one of the goods acquired in their annual trading expeditions *(híri)* to the west.

(20) The body hair was not removed by the Motu, but the natives of *Hulá'a*, *Kerepúnu*, and *Aróma*, occupying the coast between the Motu and the Mailu, remove their pubic hair by means of pumice stone.

Women, when in mourning, shave their hair, but not otherwise. In that sex there is a greater variety in the methods of arranging the hair; for besides being left to grow as it will, in which case it forms the characteristic mop, it is plaited with mud and grease. Some women wear it plaited all over, when their head presents a kind of *caput Medusae*—a style called *Urubatúna*. Others leave it alone on the front and top, plaiting only the occipital locks into curls, which hang down over the neck. This is, however, a fashion introduced from the Massim, and is called *Dóio*. The plaiting into locks seems to be the correct way of treating woman's hair when it grows long, and it is connected with the fact that the women do not wear a comb, nor have I ever seen a woman using one to comb her hair or to scratch her scalp. With the locks plaited the comb is, of course, unnecessary.

The natives do not use lime for discolouring their hair, nor are there any other methods of imparting to it an artificial hue.

The nails are clipped with a sharpened shell, or else are bitten off.

The piercing of the septum of the nose is done with a sharp shell, though they sometimes use a broken ring of tortoise-shell, which, when made to grip the septum, acts like a spring and works its way through the soft cartilage by force of elasticity. This last-mentioned method is used when the child is quite young.

The ear lobes are either perforated with a sharpened shell, or by the tortoise-shell ring method. In the latter case one ring is first fixed on the lobe, and when this has worked through more are added till the opening is fairly large. Should the lobe break they pare the two ends and join them.

The operation of ear-piercing is performed on all individuals of both sexes without exception; the nose-piercing, however, is largely neglected. For neither practice was I able to find out any support in the native beliefs.

The hole in the nose septum is used for the insertion of the nose stick *(Góvi)*, made from the shell of the Giant Clam, and from other shells, and sometimes of tortoise-shell. This nose ornament (now nearly in disuse) was apparently worn on festive occasions only.

---

(21) Comp. chap. iv., sec. 4.

The perforated lobe of the ear (called *Ope)* is decorated with split tortoise-shell rings, strung into the lobe one after the other, thus collectively forming a cylindrical body hanging beneath the ear conch. Sometimes these tortoise-shell rings are alternated with perforated discs of the red ground shell, well known as "native money of the Pacific." These are placed with their plane perpendicular to that of the tortoise-shell disc, so that they present their broad surfaces to the eye. Rather uncommon is a fairly large white shell-disc, with a serrated external border placed in the lobe.

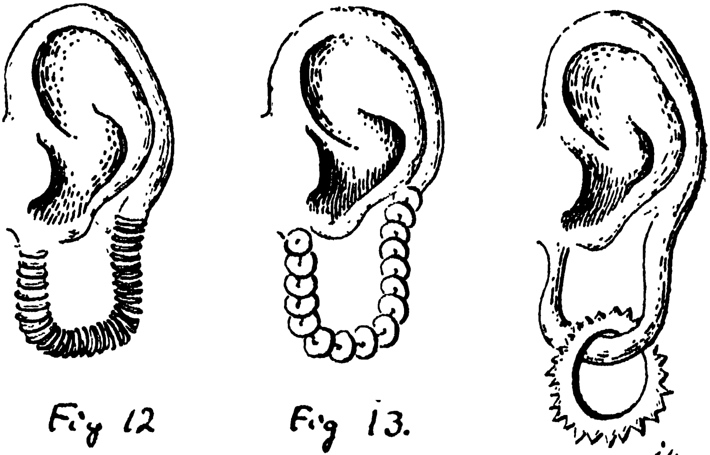


Fig 12

Fig 13.

Fig 14.

EAR LOBE ATTACHMENTS.

Fig. 12. Ear lobe, decorated with tortoise-shell rings.

Fig. 13. "*Sápisápi*," red shell discs attached to the ear lobe by means of tortoise-shell rings.

Fig. 14. White, serrated shell disc, used as a decoration of the ear lobe.

All of these ornaments, the tortoise-shell rings *(Gebóre)*, the shell-discs *(Agéva)*, and the white, serrated disc *(Kúre)* are of local manufacture.

The teeth are sometimes artificially blackened to a jet black colour. To effect this they mix the decayed root of the *Badila* tree with the green leaves of some other kind of tree. This mixture they apply to the teeth with a piece of bast, allowing it to remain over night. The process is repeated from time to time.

All the women tattoo the face and the body in a pattern identical with that of the Massim, and undoubtedly borrowed from them. The tattoo is done by pricking the skin with a thorn of the sago palm or of the lawyer cane, and introducing by this means a substance made of charcoal and some other materials. The tattoo marks show deep blue on the brown skin. The design is done in a fixed order, as in the Motu tribe,(22) though apparently the order is not the same in the two tribes. The first tattoo, which takes place at the age of four or five, is done in the lower abdominal region and round the vulva. Then the left hand and forearm are worked over; after that the right hand. Both upper arms follow. Then, just before the swelling of the breasts, this part of the body is tattooed, and next in order comes the legs. The ornamenting of the face is connected with a small feast, in which women only participate. Taro is brought into the house and the girl sleeps on it. The next day the girl's face is tattooed, and in the afternoon the food is eaten. The shoulders of a woman are tattooed after marriage, and the faces and bodies of the men are never tattooed.

The dress and ornaments varied with the occasion. Broadly, one may distinguish three typical forms—the normal form of dressing, the mourning, and the festive, attire. In the case of a man the essential article of clothing, the perineal string or cloth, remains unaltered, the ornaments only being changed; these are removed during mourning and increased on festive occasions. The women have different kinds of grass petticoats for each of these occasions.

The man's perineal band consists either of a piece of native rope (called in this case *Ivári),* or a piece of cloth *(Lámoa),* beaten out of the inner bark of the paper mulberry tree. Both are worn in the same way, the cloth automatically rolling up into a rope-like shape. The string is passed round the body and between the legs, lying over and between the testicles and displacing the penis to the left. The prepuce is extended and passed under the rope, the penis being thus kept in position. This arrangement of the genitals is called *Bú'i.*

Nowadays the natives have practically abandoned their old form of dressing under the stress of missionary influence, and are clothed in European rags of often indescribable filthiness, so that one only sees the *Bú'i* arrangement on old people or at feasts, when the natives revert to their ancient fashions. The man's dress is completed by a pair of armlets and the comb as described above. The armlets *(Tsáriba;* in Motu, *Gána)* were plaited with a kind of fern vine, which has a very fine brown colour in the finished article. The better class of armlets had on them designs interwoven with the golden-yellow cortex of an orchid *(Gaile)*,

---

(22) *Cf.* C. G. Seligman, *op. cit.*, p. 74.

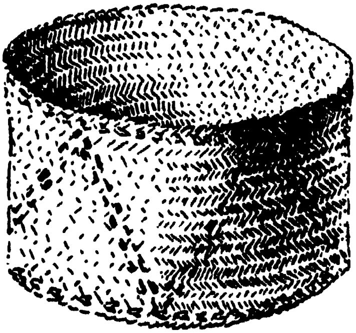


Fig. 15.

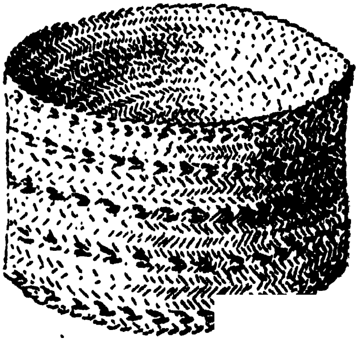


Fig. 16.

NATIVE ARMLETS.

Fig. 15. Plaited and ornamented with yellow orchid straw in a zigzag line.

Fig. 16. Decorated with yellow orchid straw.

the two most usual designs being in the one case a zigzag line (called *Gaile túri lóbo lóbo káo)*, and in the other consisting of three or four lines parallel to the edge of the armlet (this is called *Gaile túri lauróro)*. The armlets, the belt, and sometimes the perforated lobes of the ears are habitually used as receptacles for trade tobacco, plants, sticks, string, and other small articles. Whenever bulkier things have to be carried for a long distance both men and women use baskets (comp. chap. iv., sec. 7). The women wear "grass" petticoats, and this dress is still universally in use, though it is sometimes supplemented by a singlet worn on the upper part of the body, or, exceptionally, by a ragged, shapeless cloak put over everything.

The so-called "grass" petticoats are made of coconut palm leaves, which are cut into narrow strips with a small sharp shell. The narrower and finer the strips the better the quality and the more festive the garb. The very best examples are very supple, and have the flexibility of a fine fabric. After the leaf has been split into a number of strips it is inserted between two bands of the same kind of native bark *(Varu)* as is used for making native rope. These form the top of the skirt. The bottom is cut into a straight line. Several of such petticoats are worn one over the other, and the greater the gala the more petticoats are used, so that a fully-dressed native girl invariably suggests the effect and associations of the crinoline. The women wear the same kind of armlets as the men.

Meals.—There is only one substantial meal in the twenty-four hours. It is eaten in the afternoon, at sunset, in the *Valavitsa* hours. What remains over is eaten next morning, but this does not constitute a substantial meal and is eaten cold. There is no meal at mid-day, except during the period of the change of the south-east trade wind into the north-west monsoon, when this is eaten. I was not able to find out the reason for this change of mealtime, but it was stated as a fact, and I was able to verify it by observation in December and January.

Nowadays a number of natives have served their terms as plantation boys, or have been in contact with the Mission, or served the white man in some other capacity, and the custom of eating substantially two or three times a day largely prevails over the old arrangement. I was, however, assured by all my informants that in the olden days a man would never eat much in the morning or think of eating before sunset.(23)

The inmates of each house eat their meal in common, sitting on the verandah. Relatives and friends from other houses are often present, and are invariably invited to partake of the meal. The men and women eat at the same time, sitting in one circle—the men in a group near the front of the house, the women on the women's side. The food is portioned out for everybody in a separate dish or basket (see below).

Although friends from the same village are not ashamed, or afraid, to eat with their hosts, strangers from another tribe would not partake of the food in the presence of others. *Igua*, a Motu of *Elevála*, who came as my "boy" to Mailu, could never be induced to eat food given him by any of his numerous friends in the village. Whenever he happened to assist me at a native repast he took his share away to eat it in solitude at his own encampment. I was assured that this was the right thing to do, and that no native would ever eat publicly in a strange village; if, however, there were several natives of one tribe in a strange place they would not be ashamed to eat in public.

In the olden days, when *Dúbu* houses existed, strangers were entertained there, and there they got their food. The *Dúbu* was also the eating-place of the bachelors and of such married and old men who chose to take their meals there. Their food was sent by their respective mothers or wives.

Vevéni Custom.—Besides supplying food for its inmates, every household is obliged to distribute a certain amount of food to other related families. The amount of food given away, and the number of households to whom it was presented, varies with the abundance of food cooked that day, but there is a certain minimum of people who must be thus treated every day. This custom is called *Vevéni* (in Motu, *Hierahia)*, and as far as I have been able to ascertain it prevails among all the Papuo-Melanesians.

---

(23) This applies also to the Motu.

This *Vevéni* food must, in the first place, be sent to the father's house, in the case in which the father and son do not live under one roof. Then come the "own" (blood) brothers, and afterwards, when food is plentiful, the first paternal and maternal cousins and the uncle are presented with food. Of course, the same people return the presents to the donor in a corresponding degree of frequency and abundance. As a rule the natives, when asked to which houses they send the *Vevéni*, give a definite number, which is usually some three to five, a fact which shows that normally there is a fixed number of people with whom the interchange of food takes place. If food is scarce, and both his parents dead, he gives the *Vevéni* to his elder and younger own brothers, and to his sister. If he has sufficient food he shares it with his half-brother and half-sister, of the same father but of different mothers. In cases of exceptional abundance he sends food to his paternal and maternal cousins (tribal brothers) in equal shares.

Food: Raw Materials and Preparation of Food.—The animal food of the natives consists of game, such as pigs, wallabies, kangaroos, rats, bandicoots, cuscus, and various birds, and of fishes and shellfish. The inland *Mágí* had a better supply of land game and the Toulon islanders had a greater abundance of fish, but all the villagers are both hunters and fishermen (see chap. iv.). Moreover, fish seems to be a much more easily and regularly accessible form of food for those natives who live near the sea than game is for the inland natives. Pork is derived from two sources—the wild boar, which is hunted, and the pigs that are bred in the village. The village pigs, which are the more valued, are killed only on the occasions of important feasts (*cf.* chap. v., sec. 3).

Vegetable food is undoubtedly far more important in native households than animal food. In the Mailu district, as in all wet regions of Papua, the predominant vegetable food consists of bananas and taro, bananas occupying the first place. Of these there are very many kinds indigenous to the country, and now there are, besides, several introduced sorts. There are four kinds of indigenous taro and four kinds of yams. There is another tuber, called in Motu *Taitu*, of which there are several varieties. Sago grows in many places, and every village possesses its sago swamp and coconut plantation. Nowadays the introduced sweet potatoes and pawpaw constitute an extremely important item in native housekeeping.

The bananas are eaten ripe as a fruit, but their chief culinary use is to be eaten as vegetables, for which purpose they are used in the green, unripe state. They are not peeled, but only cleaned and their ends cut off. The taro is cleaned, scraped, and, when it is very bulky, chopped into large chunks. The same applies to the yam and *Taitu* roots, and to the sweet potato—a recent introduction to Papuan soil. The pawpaw is also used green, as a vegetable. The scraping of the taro, yam, and *Taitu* is done with a *Cypraea tigris* shell *(Gúna)* cut in half and sharpened. Taro and yams are chopped into pieces with a pearl shell *(Meleagrina* sp.; in Mailu, *Oráva)* sharpened into a fine blade. The scraping of bananas is also performed with a shell, of which two kinds are used, one very small and called *Ku'i'i*, and the other slightly larger and called *Níka'i'i;* both are of the same shape.

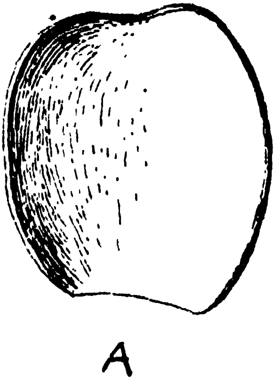


Fig. 17.

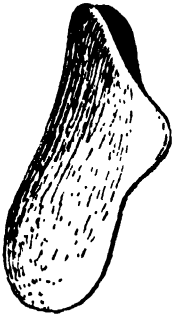


Fig. 18.

VEGETABLE AND FRUIT SCRAPERS.

Fig. 17. *Gúna*, a vegetable scraper, made of the top half of a *Cypraea* shell, sharpened into a blade at the end A.

Fig. 18. A small, naturally sharp-edged, bivalve shell, used as scraper; called *Ku'i'i* (smaller species) and *Níka'i'i* (larger species).

Cooking and Dishing-up.—If the food is boiled, both vegetable and animal foods are cooked in the same pot. There are three methods of cooking used by the Mailu natives: boiling, roasting, and baking with hot stones.

Boiling *(Dáridári;* in Motu, *Nadúa)* is done in one of the large earthenware pots, which are manufactured on Toulon Island and in its direct colonies *(Domára, Oraído,* and

Kurére). Leaves, usually those of the banana, are put at the bottom of the pot, the food is placed on top of them, and is again covered with leaves. Some water is poured in, but not in sufficient quantity to swamp the whole contents of the pot, so that the process is rather one of steaming than of boiling. The result is generally very palatable, though not equally appetising at all times.

The process of boiling does not require more than about one hour at the outside. It is done on the verandah if there is no wind, or in the room, when there is too much breeze. The pot is supported by three stones of regular shape and equal size, the sticks of firewood being inserted radially into the spaces between the stones. Sometimes old damaged pots are used as supports instead of the stones.

After the food has been boiled the solid substance is distributed into wooden platters or baskets. There are two kinds of the former, one circular and flat, with a scroll ornament on the upper border; this is called *Gaéba*, and is manufactured in the Massim area. The best specimens, however,

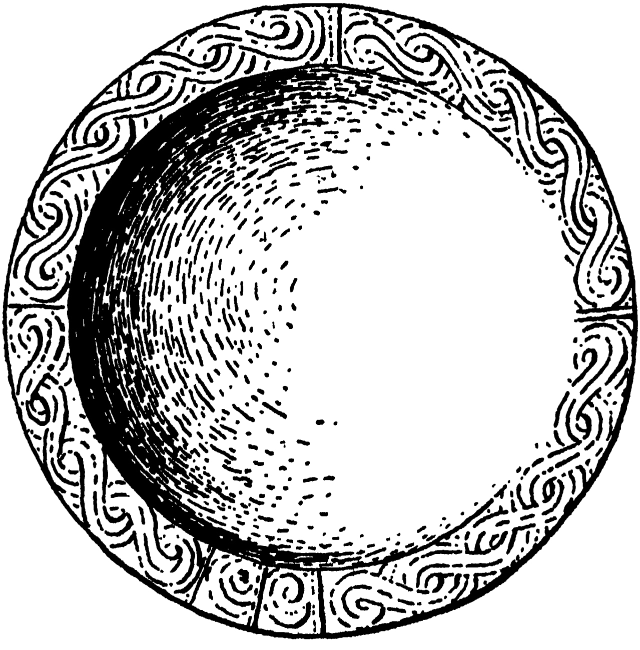


FIG. 19. WOODEN DISH *(Gaéba)*,
used in Mailu but manufactured in the Massim area, especially in the Trobriand Islands.

come from the Trobriands and Woodlark Island, and they are also manufactured by the Southern Massim. The other form of wooden platter, called in Mailu *Abóma*, is oblong, and may be described as boat-shaped. They are sometimes manufactured locally, but their real home seems to be Hood Bay, where they are made by the *Kerepúna* They are also used by the Motu of *Hanuabada*, who, however, do not themselves make them, but trade them from the Hood Bay natives. Their Motu name is *Dihu*.(24) (See pl. xxxii., figs. 1 and 2, where *Abómas* of an exceptionally large size are shown).

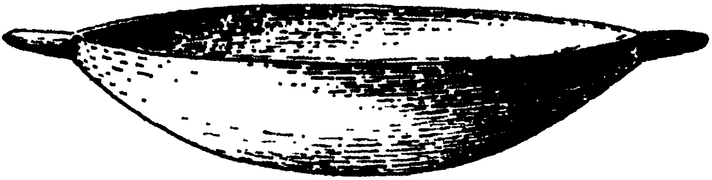


Fig. 20. Oblong Wooden Dish (*Abóma*).

The baskets, called *No'obóea*, used at times for dishing-up solid food, are rather roughly made of plaited coconut palm leaf (comp. chap. iv., sec. 7).

The solid food is eaten with the fingers, or, if it is hot or bulky, with one-pronged forks, made either of wood or of a pointed wallaby bone.(25)

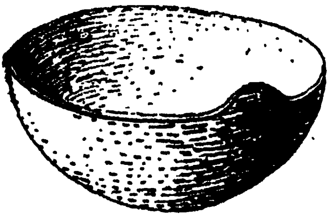


Fig. 21.
Halved Coconut Shell, *Bío*, used as a spoon.

The liquid obtained by boiling, called *Ríu* (in Motu, *Vasiáhu*), is ladled out of the pot by means of the *Bío*. This is the half of a coconut shell, with all the soft material removed from both the outside and inside, and sometimes with the brim serrated by way of ornamentation. There is also a slight prominence on one part of the rim, which serves as a rudimentary handle.

In the second form of cooking (called *Gábu-gábu*; in Motu, *Gábua*) the food is roasted over the fire or placed in hot ashes.

---

(24) The circular wooden dishes do not reach as far as *Hanuabada*, where their place is taken by the round earthenware plates called *Kíbo*, or, if larger, *Ná'u*, which are manufactured locally.

(25) I did not make a note of the Mailu names for forks. In Motu the bone fork is called *Díniga* and the wooden one *Nébo*.

The third method in use among the Mailu is baking by means of heated stones (called *Ponúa;* in Motu, *Amúdo).* In this a layer of stones (not heated) is first put on the bottom of a hole dug in the ground, and on these some heated stones, on which the food to be baked is placed; then on the top of the food more hot stones, and finally a layer of banana leaves.

It is to be noted that the three processes are by no means used indiscriminately, or side by side. Wherever and whenever the pot and other requisites are available boiling is much preferred by the natives. Soup *(Ríu)* is very highly appreciated, and boiled food is considered altogether superior. The method of baking between stones is said to have been practised formerly (before the white man's influence) by all, or nearly all, the inland *Mági*, especially by those on hostile terms with the Mailu islanders, who had the monopoly in pot-making. Nowadays, friendly relations and trading having been established between all the *Mági*-speaking people, boiling is the only method of cooking in use, except under special circumstances. Baking or roasting is resorted to in cases of emergency on hunting expeditions, or when on marches, etc., water is not available. There is also a series of taboos which, in certain cases, forbid the use of boiled food and only permit of roasted or baked nourishment (comp. chap. iii., sec. 5, and chap. v.).

Sago Dishes and Coconut Cream.—Although the native food presents a considerable variety, owing to the number of available plants, they have no different dishes, in our culinary sense of the word, and the food stuff retains its name after it has been cooked. The only exception to this culinary sameness is the sago, which can be prepared in several ways, thus yielding different dishes called by different names. The sago *(Odei;* in Motu, *Rábia)* emerges from the manufacturing process as a dirty white mass of farinaceous nature, wrapped in leaves and tied up into long, sausage-like parcels about sixty inches in length and ten inches in diameter (comp. chap. iv., sec. 1). This mass is sometimes eaten raw, but more usually it is prepared and cooked. If the finely crumbled material is boiled into a porridge with green coconut milk and brine it is called *Patsíra.* In Motu, sago porridge is called *Iára*, and is usually boiled in wallaby or fish broth. Slightly larger pieces of sago, similarly boiled in coconut milk and brine, are called *Góda* (in Motu, *Bákibáki).* Still larger sago dumplings are called *Bina veláru* (in Motu, *Mánemáne*, but the Motu do not use salt water in boiling sago); and meat patties made of sago are called *Ubúbu.* To make these a taro or banana leaf is taken, some sago is put upon it, then a piece of fish or meat, this being again covered with sago, and the whole, wrapped in the leaf, is boiled. *Gúmi* is a dish prepared of scraped coconut and pounded sago, mixed together and kneaded into balls or sausages, which are boiled. Sometimes sago, wrapped in a taro or banana leaf, is simply baked in the open fire, in which case it is called *Bómu*. Another kind of sago dish is called *Néva;* two small parcels of sago, wrapped in banana leaf are made, and a large flat stone is heated in the fire. Then the sago parcels are put on either side of the stone, and

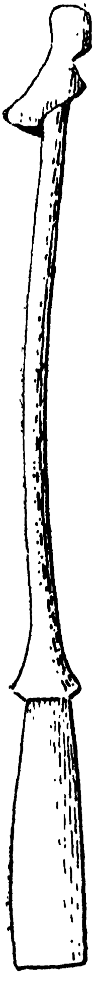


Fig. 22.

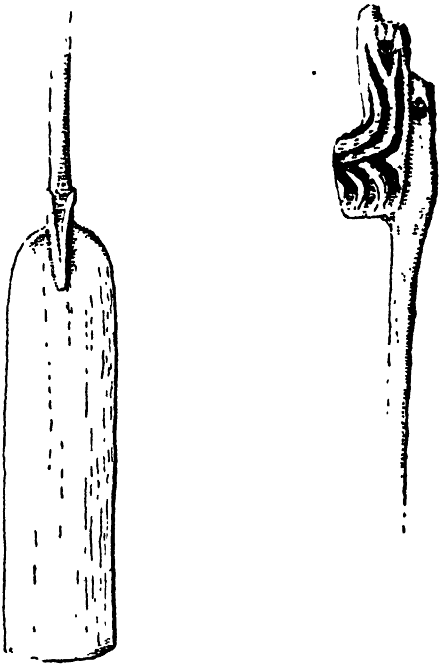


Fig. 23.

WOODEN SPATULAS.

Fig. 22. *Góda kátsi.* Wooden spatula, with a short handle, used for stirring the sago *(Góda* dish).

Fig. 23. *Patsíri kátsi,* wooden spatula, with long handle, used to stir the sago porridge *(Patsíri).* Blade length, 25 cm. Total length, 120 cm. There are longer specimens in use (comp. pl. xxxii., fig. 2).

the whole is wrapped up in a big banana leaf and left until the sago is cooked.(26) The cooking of sago in the methods first-mentioned is done in the ordinary clay pots, and in contrast with the boiling or steaming of the vegetables, which needs no stirring, the sago boiling requires the constant use of a spoon. For this purpose large wooden spoons, or, rather, flat spatulas, are used. Some of these are provided with very long handles, thus permitting the stirring well away from the fire (see figs. 22 and 23, and pl. xxxii., fig. 2).

Perhaps the most important seasoning and culinary ingredient in Mailu cooking, as well as in that of all the other coastal natives, is the coconut cream, *Góro góro* (in Motu, *Dehóro*). It is the only regular source of fat in the natives' diet, and it renders his food both nourishing and palatable. To obtain it a ripe coconut is broken and the interior scraped with a piece of shell, which is usually cut into an oval shape and serrated on one side (see fig. 24). This instrument is named *Kaikóa*.(27) The scrapings are soaked with water and squeezed, or they are sometimes strained through a basket, especially when the coconut cream (*Dehóro*) is manufactured on a large scale on festive occasions (see pl. xxxii., fig. 1), and is eaten as a sauce practically with all the solid food, except when the coconut taboo has to be observed (comp. sec. 5 of this chapter). Sometimes, as mentioned above, the food is boiled with *Dehóro*.

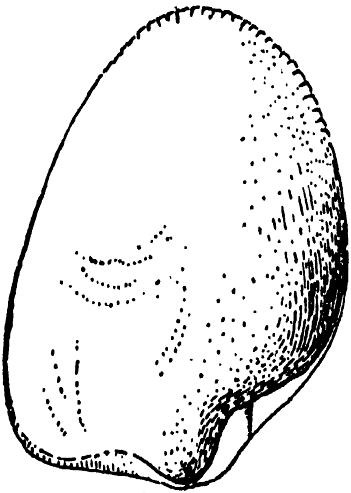


FIG. 24. COCONUT SCRAPER.

Kaikóa, a shell, serrated at the end. It is used as a coconut scraper.

The jungle supplies the natives with a certain amount of fruit, such as native mangos, mangosteens, a fruit called

---

(26) The Motu prepare sago by boiling it with ripe bananas and call it *Púrirári*. Small dumplings of ripe banana and sago (*Día*), wrapped in banana leaves, are boiled in water and eaten with *Kétara*, which is boiled coconut cream (*Dehóro*). Sago porridge boiled in *Dehóro* is named *Iára*, as just mentioned.

(27) Besides the serrated pearl shell, other shells are used as inferior implements, notably a large *Venus*, called *Eira*. Nowadays natives often use large and complicated scrapers supplied by the white man's trade.

Gaméla, and several others, the names of which I did not record, that are eaten raw.

Narcotics.—As narcotics the natives use tobacco and areca nut. A native tobacco was used before the advent of the white man, but nowadays twisted trade tobacco—called universally in Papua *Kúku*—is exclusively smoked, at any rate by the coastal natives. They use the often-described method of smoking through a bamboo pipe *(Báubáu)*, which is provided with a small hole to hold a cigarette. The tobacco, which is cut and kneaded, is rolled into cigarette form in a leaf, of which there are several kinds, called *Ná'pera.* The cigarette is inserted in the hole, and by inhaling at the mouth end the *Báubáu* is filled with smoke. The smoker then removes the cigarette and draws in the smoke through the hole in which this has been inserted.

As a rule one person—usually a young boy, and in any case the youngest member of the gathering—performs the function of filling the tube with smoke and of handing it round. Smoking is a social business, and whenever there is a gathering of any kind a *Báubáu* is essential. There are at present scarcely any of the richly ornamented bamboo pipes in Mailu, as they belong to other parts of the territory. I was informed that the Mailu know how to ornament the *Báubáu*, but evidently they are either only poor experts in the art or else they do not care very much for it, as I do not remember seeing a single carved or burned *Báubáu* in Mailu, though they are plentiful in some other villages.

A social function analogous to that played by tobacco smoking is that of betel chewing. The ingredients here are: The areca nut *(Wéni;* in Motu, *Búatau)*, the wood and bark of betel pepper (in Motu, *Pópo)*, some leaves (betel leaves ?), and lime. The latter is carried about in the lime gourds which form one of the most characteristic accessories of a New Guinea native. The lime is used by stirring it up with, usually, a spatula—a kind of wooden knife—or sometimes with a pointed bone, from which the lime is licked off. Mailu natives, however, do not manufacture either the gourds or spatulas with any really artistic execution, though they possess some of the well-known ebony carvings of the Northern Massim which are used as spatulas. Not only are the spatulas manufactured in the locality poor and without characteristic features, but the Mailu, in contrast to their neighbours, the Massim of *Bónabóna* and *Suá'u*, do not really care for the finer specimens. These two groups, though as a rule unable to produce the fine carvings of the Trobriand islanders, import and value them, and are very loath to part with them.

2. VILLAGE LIFE.

The Seasons and their Influence upon the Social Life of the Natives.—The village life varies with the seasons. There is a season for dancing and feasting; much thought is then given to these activities, and on their advent the whole character of the village changes. There are times when there is much fishing and times when hardly a native takes out a net, though women go out by night and search the reef with torches for *frutti di mare.* The trading expeditions are carried out at fixed times in the year, and the gardening activities are, of course, periodical, and regulated by the seasons. Thus it is necessary to give an outline of a native's year and the way in which it is divided. The special activities (feasts, economic activities, dancing) will be treated in subsequent chapters; in this paragraph I shall speak of what may be called the normal village life, that is of the aspect of the village, as it is when there is nothing special going on.

Seasons; Native Division of the Year.—The Papuan year is naturally divided into two halves; the time when the south-east trade wind is blowing (May till November), and the summer, during which the north-west monsoon is prevalent (January till March), there being about a month's interval, during which the wind changes and there is very little breeze. The trade wind blows steadily, commencing every day before noon, reaching its climax at about four in the afternoon, and dying away at night. Any other wind at that season is exceptional, there being even very little land breeze at night. The monsoon does not blow steadily, but it occasionally comes down in violent gusts (called *Guba* in Motu). There blows sometimes the southerly wind during the north-western season, and, as a rule, the land breeze is fairly strong at night.

All the coastal natives naturally regulate their social life with reference to this seasonal bipartition and divide the year into two halves, *viz.*, in Mailu, *Bodéa;* in Motu, *Laurabáda* (the south-east trade season); and, correspondingly, *Avára* and *Laháru* (north-west monsoon time, or summer). Besides these main divisions the Mailu natives have further subdivisions, distinguishing several seasons or times *(Wána)* in the year. These are named after natural phenomena. The names of the two main divisions are also derived from the same source: *Bodéa* meaning, in the first place, the south-east trade wind, from which both the south-eastern direction and the winter season have been named. *Avára* was originally the name of the north-west monsoon, and also means the north-western direction and north-western season. As wind names the two words are substantives; in direction and season naming they are used in an adjectival form: *Bodéa aúra* meaning the south-eastern side or direction, *Bodéa wána* the south-eastern season, *Avára aúra* the north-western side or direction, and *Avára wána* the north-west monsoon season.(28)

The Mailu seasons are not related to the changes of the moons, though some of my informants designated them as moons (*Dovére*). This seems, however, to be due to the influence of the Motu language, which I used in talking with the Mailu natives, the Motuans having names for the thirteen moons (lunar months).(29)

The proper word to designate the Mailu year divisions is *Wána* (time, season), and not *Dovére* (moon). These divisions are only loosely defined, being determined by winds, flowering of certain plants, and by other phenomena which, though regularly occurring, lack the precision of astronomical phenomena.

The Mailu natives seem to place the beginning of the year somewhere about the end of December and the beginning of January, at least they usually start the enumeration of their seasons with that time, which is the period when the first gusts of the monsoon set in.(30) The season is named after the wind *Avára kiwanai*, which means "small *Avára*." At that period there is little or no day fishing, but at night the reef is searched with torches. Some sailing and trading is done, the land breeze at night being favourable to voyages in any direction along the coast. If the big annual feast is belated it may fall within this period, in which case there is much trading and sailing done during the small *Avára*. In any case, the natives sail at this season westwards to *Léa* to get sago and to *Magaúbo* (Table Point), where they get the *Akai*, a small kind of areca nut. They come back home easily with the strong monsoon.(31) This season corresponds to our months of January and February.

---

(28) It is the same in the Motuan language. The substantives *Laurabáda* and *Lahára* mean the south-east trades and the north-west monsoon respectively; adjectively, the words are used in *Laurabáda káha*, the south-eastern side or direction, and *Lahára káha*, the north-western direction. Also *Laurabáda* or *Lahára néganai*, the south-eastern or north-western season; literally, in the time of the *Laurabáda* or *Lahára*.

(29) The Motu divide their year into 13 moons, the beginning of the year being somewhere in January. It is determined by the position of Pleiades, so that the first moon usually falls into its right place in the astral year.

(30) This coincidence between our, European, beginning of the year and what I am calling here "the native beginning" is hardly due to the influence of missionaries or of other white men. In the mind of the native there is good reason for calling this time the beginning of the year, for this is the time when they commence making new gardens—the most important activity among the majority of the inland tribes, who are agriculturists. Again, on the sea, this time marks the beginning of the monsoon; the shorter, but more interesting period. All along the coast this is also the period when important sailings take place Thus among the Motu the *Hiri*, or great expedition to the gulf, returns with sago; the *Hulá'a* make their *Hiri* to *Hanuabada* and the Mailu make their departure for *Aróma*. Again, at that time the big feast is either over (Southern Massim, Mailu mainland) or (exceptionally, as in Mailu village) it is in immediate approach. This change of seasons (December-January) is decidedly much more likely to appeal to the natives' imagination than the other one (April-May).

After *Avára kiwonai* comes the *Avára ogóda*, or big *Avára*, so named after the force of the monsoon. This is also the real wet season, during which there is not much sailing or fishing, and the festivities as a rule are over. It comprises, roughly, the second half of March and April, and towards the end of it the gardens are being planted.

The next season is called *Tsilówo*. It is subdivided into: *T. gogótsa*, which means the point, the front, or the beginning of *Tsilówo; T. ogóda*, the big, or full, *Tsilówo;* and *T. lóbo*, or the breaking up of the *Tsilówo* season. This period is named after the high, rank *Lalang* grass which covers the slopes of the hill on Toulon Island and many patches in the jungle of the district. The grass flowers at about this time (May and later). The beginning of the *Tsilówo* season is marked by the appearance of the flowers; then these ripen into fruit and disperse their fluffy seeds, which marks the end of the season. On the mainland the natives are engaged with their gardens, and the Mailu islanders begin their fishing. They go to *Magaúbo* (Table Point) to catch the *Ume* fish, which they smoke. During this season the monsoon subsides, there is a time of calm, and the south-east trade wind begins. The same season is also called after the phenomenon of the drying of the reef (*Lagáru wúra* = dry reef). Another characteristic name for this season is *Borówo bóuai*, which means blowing the petticoats awry, in reference to the effect of the first strong gales of the south-eastern breeze. The *Borówo bóuai* overlaps the *Tsilówo lóbo*—the breaking up of the *Tsilówo* season, which occurs about the middle of July. After this comes the *Viníu* season, named after a tree which sheds its leaves in the middle of winter (July, August). The next season (September) is called *Bátu*. This is the name of the characteristic buds of the *Viníu* leaves which begin to appear about a month after the tree has shed its leaves. The whole of this season is also called sometimes by the name of *Aurári*. This would cover our months of July (second half), August, and September.

---

(31) Comp. chaps. iv. and v., where native trading and its connection with native festivals are described.

The spring is named after the *Lióro* tree, which is flowering and fruiting at this time (October till December). This season is divided into *L. gogótsa*, the beginning of the *Lióro*, and *L. ogóda*, the full, or big *Lióro*. This is perhaps the most pleasant season, there being no rain or squalls, while the weather is cool, owing to the continuance of the south-east wind. It is the best time for sailing, as the prevailing wind will easily carry westward, and the return journey may be made with the land breeze, or with one of the first blows of the monsoon. It is the time for dancing and preparing for the big annual feast, and consequently it is also the time for love-making. Very often the big feast is held during the *Lióro*, as well as all the preparatory sailing and trading. The natives consider the *Lióro* as the pleasantest and most important time of the year, and the word for year is *Lióro*. The last part of the *Lióro* is named *Obu*, after the fruit of the *Lióro* tree, and it is just at the time when this fruit begins to turn brown and ripe that the *Avára* (north-west monsoon) begins to blow.

Normal Life in the Village.—As mentioned above, the villagers are busiest in the morning and late afternoon. The mid-day hours are spent in a siesta, unless work is pressing; then, as a rule, the village looks dead and deserted. Some exceptionally industrious women—and usually you see the same over and over again—will sit the whole day long on the sand under the house making pots. Or some men will finish making arm-shells, so as to have something to trade with. Again during the *Lióro* and *Avára* seasons, when there is much sailing done, the whole male population, at times, leaves Mailu village, and such villages as *Kurére* and *Loupóm*, where there are many canoes. The women and children follow the men in great numbers, so that the village is practically deserted. This is undoubtedly an innovation since, before the white man's influence, it would not have been safe to leave the village defenceless but for the presence of a few weak people. But even in olden days the intensity of village life must have varied greatly with the season.

Early in the morning the village is very busy. People eat their frugal morning meals and prepare for their day's work. The time at which they start for their gardens or other work varies with the distance. On Mailu Island the gardens are close at hand; in the mainland villages thy are often fairly remote. The day is usually spent out of the village in one or other of the economic occupations (gardening, fishing, hunting, sailing), those remaining behind devoting themselves to siesta. In the afternoon the women return from the gradens, carrying vegetables and firewood, and water in water-bottles. An hour or two before sunset the meal is prepared and put on the fire. In the evening, if it be the proper season, there is some dancing in the village; otherwise the people sit in groups and talk. At such times the fronts of the verandahs are crowded, the men in some houses sitting on the verandah, in others the women gathering together on the front.

There is a marked separation of the sexes in the village life. At daytime, when at work, there is the man's end of the verandah—the front; and the women's—the rear end. Not that there would be any taboo or even customary restriction in this respect, but, normally, one sees the men in the front part and the women busy round the fireplace behind. If there is anything going on in the street there will be in some houses women in the front of the verandah; but usually they keep to themselves. The groups in the street, on the beach, behind the houses, and on the bush side of the village are formed by members of one sex only. Men and women converse freely in public and approach each other, but it is not the right thing for a boy and girl to talk together in public for any length of time, and husband and wife do not associate in the street. When I approached a group of women my native interpreters and informants usually drifted away, or sat discreetly at a distance, never freely joining the circle of women. There is, in fact, a great deal of decorum in the relation of the sexes in public, a man never paying too much attention to a woman in public. There is also what might be called a distinct feeling of decency, without giving this term its strict, moral European meaning. My informants would not talk loudly of certain subjects on the verandah, for fear that women might hear from the adjoining houses, although hardly any woman was able to understand Motu, in which the conversation was carried on.(32) And once, in the course of inquiring about man's dress in olden days, I was warned not to talk loudly in public about the *Bui*, or arrangement of the perineal band; in fact, I was asked not to say this word loudly, as everybody would be ashamed, and, indeed, I saw that my informants would feel seriously uneasy at such a breach of *étiquette*. I was told at one time that men would never mention before women any words or topics that would be considered indecent in our sense of the term.

---

(32) Men learn Motu when working in plantations, or when in jail, or when in contact with the native constabulary. The members of the latter all speak Motu, as they are recruited from all tribes, and had to adopt some common language. Women have none of those opportunities. Thus Motu has become distinctly a man's language. In Mailu few men, especially those under forty, do not speak it, but there is not a single woman who can speak this language.

The division into clans is quite marked in village life, members of the same clan associating much more closely than those of different clans. The people naturally keep to the neighbourhood of their houses when they go out into the street or on the beach, and squat down to work or gossip, or, as is most usual, to do both at the same time. Unless on business, it is not usual for people to intrude upon the grounds of another clan. The groups of women engaged in pottery-making, or the men in making arm-shells, etc., sit in the portion of street or beach adjoining the houses of their clan, and the dancers, who for months rehearse the dance before the feast, do so in front of the houses of the clan that is giving the feast.

3. SEXUAL LIFE AND MARRIAGE.

Sexual Life before Marriage.—The love affairs of the Mailu youths and maidens are settled in the manner typical to the Papuo-Melanesians, which has been described by Prof. Seligman in the case of the *Koita*.(33) As there are, however, notable differences in details, the general tone of the whole proceedings being perhaps slightly stricter and more decorous in Mailu than amongst the Port Moresby tribes, it will be necessary to give a full account of the erotic life of the Mailu.

The boys and girls have perfect freedom to please themselves in choosing their lovers and in managing their intrigues. This does not mean, of course, that there is anything like a promiscuous intercourse or even anything approaching licentiousness in sex matters. The stern correctness observed in public life penetrates into the privacy of love-making. A girl who changes her lover often is considered decidedly open to blame; a girl once betrothed is bound to keep chaste, the same rule of conduct applying to a boy. And far from being polite and easy-going towards strangers in these matters, as is the case with the Massim,(34) the Mailu would never allow a stranger to approach their women. This puritan feature is shown nowadays in the fact that it is more difficult for a white man to obtain favours from Mailu women than it is in any other coastal districts; this was the verdict of all the competent white Papuans I consulted on the matter. And when, a few years ago, a beachcomber persuaded a married

---

(33) *Cf.* Seligman, "Melanesians," chap. iv., p. 76.

(34) C. G. Seligman, "Melanesians," p. 561.

Mailu woman to elope with him, public opinion was so strong that the Mailu village constables handcuffed the man, and had to suffer afterwards for thus exceeding their powers.

The prenuptial sexual relations are subject to the rules of exogamy, and clan exogamy regulates both marriage and extraconnubial intercourse, though not with strict rigidity; in fact, there are to my knowledge two cases, one in Mailu and one in *Kurére*, of endogamous marriage—endogamous not only with reference to the clan, but even to the subclan. These two cases refer to rather old men, who, so far as I could ascertain, had married before the white man's influence had made itself felt. They are stamped by the natives as instances of wrong marriage, and it is said that such provoke both indignation and derision. But apparently there has been no attempt at interference or punishment in these instances, and when things had settled down the men concerned seemed to enjoy their due share of public respect.

To return to prenuptial relations, the custom of having a sweetheart is called *Ui'ui*. The young man calls his mistress *Ui'ui avétsa* (*Avétsa* = woman). From the confidences of several young sparks of the village of Mailu, I have been able to construct the course of native flirtation. It seems that the initiative comes from the young girl. A girl who fancies a boy might ask him for a piece of betelnut or a bit of tobacco, when they meet casually on the way to the gardens, or during the dances, or on any other occasion when men and women come momentarily into contact without attracting attention, and the boy would naturally grant her request. After several such hints, the boy would seize the first opportunity of approaching the girl again on an occasion when he could do so without drawing the eye of public opinion upon them, and he would then spontaneously offer her a small gift of *Kuku* (tobacco) or betel. At this the girl with "natural astonishment" would ask, "Why do you give me this?" to which would reply the boy, "Because I love you." And very likely they would arrange, then and there, for a further meeting. The rendezvous would take place in the girl's house at a time which would be sufficiently late to give an ample margin for all the other inmates to be asleep. The boy, seeing that all is dark and quiet, would climb up the verandah and try to find the girl in the appointed corner, and she would carefully ascertain by touching his face and ornaments that it is the right person. They would talk to each other in undertones, taking great care not to be heard or detected by the other inmates of the house or by any of the neighbours. There was some disagreement between my informants as to whether the girl's family and the neighbours really do not know—and must not know—what is going on, or whether they more or less admittedly wink at the proceedings. I should be inclined to think the latter. Anyhow, even in the case of detection there would be no punishment for the offenders, though some fuss and a bit of abuse might make the next evening unpleasant. The thing is, or ought to be, kept a secret from the other boys of the village, only the nearest friend *(Gaidi)* or friends of the man concerned being in the confidence.

Kissing was, of course, not known by the natives of Mailu before the white man's advent. I was told, however, that the younger generation have acquired that habit from the Europeans, and that they seem rather to appreciate it. The usual form of flirting was for the boy to sit close to his sweetheart, holding her hand or her breast, and talking in undertones.(35)

It is very characteristic—and the emphatic consensus of all my informants leaves no doubt on the point—that in cases when the young man has serious matrimonial plans there is no sexual intercourse between the two. In that case the two spend the evening, often late into the night, merely talking. On the other hand, if the boy does not want to marry the girl, intercourse takes place, though even in such a case matrimony may evolve in the course of time. Anyhow, I was assured that the boy not unfrequently plans and suggests marriage when the first rendezvous is appointed, and that in such a case he would not make any sexual advances.(36)

Moreover, the boy would not pronounce the name of his *fiancée* in addressing her, which interdiction obtains also between husband and wife.

---

(35) Among the Motu the right conventional attitude whilst courting was for the boy to sit on the knees of his mistress *(Síhari)*.

(36) This version is confirmed by the identical state of things to be found among the Motu, *Koíta*, and *Sinaughólo*. The boy would never cohabit with his sweetheart if she was betrothed to him by the *Máo-héni* (Motu language) form of marriage (this form of marriage is called in *Sinaughólo*, *Kilakau)*. If originally he did not overtly declare his matrimonial intentions, a boy might have an intrigue with his mistress (Motu, *Sihári*; Koíta, *Siwári*; *Sinaughólo*, *Kologhána)*. He could in course of time make up his mind and marry her, in which case the marriage form is called in Motu, *Heráhe*; in *Koíta*, *Iríri*; in *Sinaughólo*, *Véga'ra-ghoréma*. At any rate, the fact that the time of engagement is free from prenuptial intercourse stands above doubt in these tribes as well as in the Mailu. I had exceptionally good information on this point in the *Sinaughólo*, as I was admitted into the confidence of a smart and fast set of *Ligo* young men, who discussed matters among themselves and told their experiences in my presence in Motu, which they all speak as a second mother-tongue.

A girl who has had many intrigues is said to be less desirable as a wife; at any rate, she could not be married by betrothal (see below).

If the boy wishes to marry (whether he has treated his sweetheart as *fiancée* or as mistress) he makes his appearance at her house one evening in a noisy and ostentatious manner. He goes straight to the fireplace, and does not try to conceal his presence or to keep quiet; good form, however, requires that the girl's people should feign sleep. Next day the girl's parents go to the house of the father of the boy and, accusing him of intruding into their home, allude to marriage. As the boy's behaviour is an indication of his willingness, there is no difficulty in settling matters.

Besides these settled relations between a girl and a boy there seem to be at times general flirtations amongst a group of boys and girls, but, so far as I am aware, they only talk, though they possibly form preferences and arrange for meetings; no licence, however, is incidental to such gatherings. In such cases some of the girls assemble in the house of one of them, and the boys try to find it—a search in which they do not, of course, meet with great difficulties. The elders, in all probability, assemble in the upper thatched room while the young people meet in the verandah.

The only time when there seems to be any licence beyond the *Ui'ui* relationships is during the big annual feast (comp. chap. v.); in fact the dancing, which takes place with increased intensity during the few days of the feast, seems to be associated with opportunities for short-lived intrigues, and occasionally there even seem to be features of licentiousness, groups absconding together; but on this point my informants do not agree.

I have been told by Mr. Greenaway that the observation by women of taboos before the feast is associated with the idea of the preventative properties of those taboos. The young girls and young married women, as well as the men, abstain from drinking fresh water and eating boiled food, eating only roast food and drinking the milk of roasted green coconuts. They also drink and rinse their mouths with salt water. This, I am told, is supposed to prevent conception, to which accident the licence associated with the feasts is thought to predispose.

Thus the connection between cohabitation and conception seems to be known among the Mailu, but to direct inquiries as to to the cause of pregnancy I did not obtain emphatic and positive answers. The natives—of this I am positive—do not clearly grasp the idea of the connection between the two facts, just as they do not grasp the connection between illness, bodily decay, and death. From several informants I got the answer that possibly the two things are connected; but, like Prof. Seligman among the *Koita*, I found the firm belief that it is only continuous intercourse—for a month or more—that leads to pregnancy, and that one single act is not sufficient to produce the result. This may explain the ideas and practices of the preventative taboo just mentioned.

Neither do the natives seem to trouble very much about the casual connection in point. Ignorant of the physiological knowledge we possess, they approach in this connection the standpoint of the *Arunta* and the many other aboriginal tribes of Australia, amongst whom Prof. Spencer and Mr. Gillen have found a complete ignorance on this point, associated with a belief in totemic incarnation. I was, however, unable to discover any beliefs in supernatural causes of pregnancy or magical means to produce or prevent it.

It must be noted that even the taboos before the *Madúna* (feast) do not mean so much that the natives know the connection in question, as that they are afraid of conception during the feast time—a fear which might as well be based on an original belief in supernatural incarnation as on a knowledge of the real association.

The state of affairs in sex matters seems also to accord with slackness of native induction. There are very few virgins among the grown-up marriageable girls, and yet illegitimate children are rare, if not altogether absent—a somewhat mysterious state of things, which has been found by Prof. Seligman to exist among the Southern Massim(37) With the assistance of a white resident in the district of over twenty years' standing, who is himself married to a native woman of Mailu village, I inquired into the matter as carefully as I could. My friend informed me that, in spite of his strenuous attempts to discover a native preventative of conception, he failed to find any, and that the natives always told him that they knew of none. Abortion is undoubtedly practised by both married and unmarried women; but, as among the Massim, it is not frequent, especially in the case of the unmarried. It would seem, therefore, that the women have some means of guarding against an undesired conception. Thus the matter is obscure, and needs explanation.

---

(37) "Another puzzling feature of the licence undoubtedly permitted throughout the *Massim* area is the very small number of illegitimate births which take place. Wherever the confidence of the natives was gained it was admitted that abortion was induced, but the most careful inquiries failed to produce evidence that the practice was as frequent as might be expected considering the prevailing liberty."—Seligman, "Melanesians," p. 500.

There is no licence on the part of married women in any form or under any circumstance, and adultery was in all cases considered a serious offence, which was sometimes punished by death (see chap. iii., sec. 5).

During the menses (called *Laro*, which means blood) the woman is isolated, and she usually sleeps in a small temporary hut erected near the house or in the woman's corner of the house. She is never sexually approached during the period. I was told by one of my informants, a very intelligent and trustworthy man, that menstruation only takes place just about new moon. When, however, I tried to check this statement by inquiry of other men, it was neither corroborated nor denied, they saying that they did not know anything about this purely feminine subject. But I have reasons to assume that the statement represents the woman's view. I could not, of course, ascertain the actual truth; but even if this be merely the belief of the Mailu women, it is of great interest. Not one of my informants was aware that pregnancy can be diagnosed by the stopping of the menstrual flow; they were, in fact, very much astonished and genuinely amused at the idea. This seems to confirm the view, expressed to me directly by some white men, who were fairly well acquainted with native women, that much secrecy and reticence obtains between man and woman in sex matters.

General Remarks about Marriage.—The marriage institution among the Mailu possesses distinct and, more or less, independent aspects. It is—in its essential and universal quality—a contract between two individuals, involving sexual relations, community of daily life, mutual services of various kinds, and, last but not least, community of economic interests in the fullest sense of that word, as applicable to the native conditions. On the other hand, marriage involves a series of mutual obligations between the husband and the wife's family. They consist in the exchange of gifts—in the main of pigs and native ornaments—which form the substance of the annual feast. This aspect is a prominent Mailu feature of marriage. The same state of things seems, however, to obtain among the other Papuo-Melanesians and among the Massim, though perhaps not with the same distinctiveness. The regular exchange of gifts is one of the main features of the Papuo-Melanesian and Massim cultures, as has been fully recognized by Prof. Seligman.(38) Now, it is beyond doubt that this exchange is in nine cases out of ten initiated as the original price of the bride paid by the bridegroom at marriage, and subsequently returned to him. Then, in turn, he has to give a pig when the next opportunity offers, and so on.(39) Although the balance seems to be always in favour of the girl's family—in the sense that they get more—there is no doubt that this system differs strongly from marriage by purchase pure and simple, and that one should speak of bride-price, etc., only in a qualified sense. Under this aspect, marriage in the Mailu (and other coastal tribes east and west) acquires a much wider social significance than it would otherwise possess. It is essentially connected with, and regulates, the gifts of pigs at the big annual and funeral feasts, and thus enters as an essential component into an institution which governs half the public life of the natives. The two aspects of marriage—individual and public—will be described separately.

---

(38) "Melanesians," Massim.

Marriage in its Individual Aspect; Marriage Ceremonies. —Referring to what has been said above concerning the prenuptial relations, it may be stated that there are two forms of marriage in the Mailu—marriage by early betrothal, and marriage evolving from a preconjugal intrigue (*Uí'ui* relationship). I was not able to ascertain whether the natives distinguish sharply between these two forms by special names and differences in the ceremonial.(40) At any rate, there is a clear distinction between the engagement *(Veáni)*. when marriage is in view and during which no sexual intercourse takes place, and the intrigue *(Vi'ui)*, when the two cohabit without intention to marry.

---

(39) The subject is discussed under the next sub-heading.

(40) As stated in a previous footnote, there was a sharp distinction between the two forms in the Motu, *Koita*, *Sinaughólo*. The *Máo-héni* form (marriage by betrothal) could be contracted only by a girl who had no previous sexual experiences (called in Motu, *Rámi hebóu;* "having her grass petticoats unparted"). A girl who has previously had *Síharis* (lovers) could contract only the *Heráhe* form of marriage. The *Máo-héni* marriage was carried out with more preliminaries and much more ceremonial. The girl was promised when fairly young; in the *Sinaughólo* tribes, further inland from the *Ligo* district, quite small girls might be betrothed when not more than three to five years old. The decision in, and the formalities of, the betrothal were mainly left to the care of the older generation, this being obviously necessary in the case of very young girls. But with the elder girls, consent seems usually to be essential. The final, and most important, part of this form of marriage is the presentation of gifts of food and native valuables. These are presented by all the boy's relations in amounts proportional to the closeness of their relationship. The *Heráhe* form of marriage, called also *Headáva-henáo*—marriage by stealing—is certainly the less decorous form, though it was the more frequent before the white man's advent. It derives its second name from the circumstance that a girl thus wedded had usually been previously promised to another boy. Hence also the difficulties often attending such marriages. The preliminary ceremonies of betrothal and exchange of gifts are absent, and only the final one of bridal price takes place. It is identical with that which occurs in the *Máo-héni* marriages. (This short outline is a very much abridged account of the excellent information obtained on this subject from a committee consisting of *Ahúia*, a *Koita* man, a Motu of *Gábagába*, and several *Sinaughólo* men. It will be published in full in another place.)

The following account refers to the marriage by betrothal, and I unfortunately failed to inquire what modifications take place when the second type of relationship evolves into marriage. One thing is certain, however, namely, that the conspicuous gift, forming the substance of the marriage contract, obtains in both modifications.

The girls are betrothed at an age not earlier than seven or eight, but usually at about fourteen or fifteen. In the betrothal, in its proper form, the initiative always rests with the parents, and very often the inclination of the girl plays no part in the arrangement. The first agreement is accompanied by a small gift, called *Odi'egéri*, usually consisting of some five sticks of tobacco, or, before the advent of the white man, a corresponding amount of betelnut, some feathers, etc. There would also be a small feast accompanying the *Odi'egéri*. At the same time the previously described tattooing of the girl's face is performed (see sec. 1 of this chapter). This tattoo was a performance necessary for marriage, and it is always done when a girl is betrothed; many girls, however, have their faces tattooed without being promised in marriage. After the preliminary gift there is a mutual exchange of food presents, in which the balance seems to be maintained fairly equal on both sides. If the girl's clan celebrate a *Madúna* (big feast) during this period, the boy's father supplies the girl's father with a pig, in account of the marriage gift to be paid. It may be also added that such small feasts as that connected with the *Odi'egéri* gift are usually performed in connection with a *Madúna*. Such a feast is held before the men set out on their trading trip west to fetch pigs.

As mentioned above, both the young man and his *fiancée* do not, as a matter of *étiquette*, cohabit during the time of their engagement, neither must they have other intrigues; a girl would even refuse to marry a boy as to whose infidelity she had got positive knowledge.

After a period of time, varying in length according to the girl's age and other circumstances, the actual marriage takes place. The marriage gift, in the form of pigs and some articles of native wealth, may have been given during one of the previous feasts, but according to native custom pigs are given only at feast time. The actual marriage consists in the girl's coming to the bridegroom's house and eating with him —an act called *Tuíni daba*. The girl usually brings with her a few native valuables in repayment (probably only partial) for the bridegroom's gifts. She prepares some food—vegetable and fish only, no pig being boiled on that occasion. The food is placed on a dish between the two, and they both partake of it, *bon ton* requiring them to be bashful, and not to look at each other. It is this eating in common (*Tuíni daba*) which constitutes the essence of marriage from the ceremonial point of view.

The marriage is, however, not consummated immediately after the *Tuíni daba* ceremony. The girl returns to her parents' house for another week or so, and only after this interval has elapsed do they cohabit. The two are now married, but the mutual exchange of gifts survives the consummation of marriage, and lasts indefinitely.

Relations between a Man and his Wife's Family, as established by Marriage.—This, as said above, may be summarized in the man's duty to provide pigs when the clan of his wife's family holds a *Madúna* feast and in their duty to return this gift in a more or less adequate form, when the man's *Ará* (clan) gives a feast. The importance of this state of things lies in the fact that it throws a new light on "marriage by purchase" in general. There is really no element of barter in the whole proceedings, for it is understood that the gift by the bridegroom, or by his father and family to the girl's family will be returned later on—at least partially. Again the psychological aspect of the "payment"—the term here is, of course, not quite correct—is also noteworthy. The girl is not estimated as worth so much, and the corresponding value exacted; in fact, I think that an insufficient marriage gift to the girl's parents would be accepted without much fuss, though I was not able to get satisfactory evidence on this point.(41) On the other hand, the man and his family were extremely eager to give as much as possible for the wife, knowing that by so doing the ambition of his future partner would be gratified, and that his own prestige in the tribe would be enhanced. This view would also apply to all his subsequent gifts. Nevertheless, I think that the real decorum is observed by givers and receivers only on the occasion of the first gift. At the feasts there is always some quarrelling about pigs, though this does not mean that a man is not eager to do his best in giving them. One of my friends in Mailu failed, through no fault of his own, but through the accidental death of his pig, to bring the necessary gift to a member of his wife's family; he was genuinely mortified by this, and he was ashamed to go to the houses of the *Maradúbu* clan, which was to give the feast. He told me that no reproaches, still less any quarrelling or punishment, awaited him, but that he was sorry and ashamed for his own and his wife's sake. This is an illustration of what I gathered from the general accounts and concrete examples of all my informants. Everyone was proud of having given so many pigs, and everyone was eagerly anxious to procure as many animals as possible for the approaching feast (comp. chap. iv., sec. 4, on "Trading," and chap. v., sec. 3, on "Feasts.")

---

(41) In this respect I am in possession of much better information concerning the Motu-speaking people of the Central Division, owing to the fact that I could talk to them in their own language, for to both *Koita* and *Sinaughólo* the Motu is a second mother-tongue, and also to the fact that my informants were exceptionally intelligent. I was assured by *Ahúia*, *Maganiméro*—an exceptionally clever *Ligo* man—and other authorities that there never were any quarrels about the final gift offered for a bride. On the other hand, when the price (*Laráha*) given for a widow to her deceased husband's brothers was paid, there was usually considerable amount of quarrelling, and even fighting.

If a man wants to behave like a gentleman he gives at least one pig a year. The first goes usually to the girl's father, and as a clan very seldom gives a feast every year, the next pig goes to some other relation of the girl. When a girl's clan is again making a *Madúna*, the bridegroom gives a pig to his eledst brother-in-law, and so on. All these individuals are supposed to return his presents, though it seems that, as a rule, a man never gets back the same amount of pigs as he has given to his wife.

In order to complete the account of the relationship obtaining between a man and his wife's family, the custom called *Liá'i* must be mentioned. It comprises a series of taboos observed by the man, which entail a general avoidance of some of his relations-in-law, and forbid him to mention their names. The taboo upon the names of these people is analogous to the taboos upon the personal names of the parents and grandparents, mentioned above (chap. ii., sec. 4). It is to be noted that the two sets of taboos—the one referring to the "own" relatives and the other referring to relatives-in-law—are distinguished by different names. The first is called by the general term, *Góra*, applied to things tabooed or forbidden; and the second by a special name, *Liá'i*. The father-in-law *(Evai'égi)* and his son-in-law *(Botsia)* do not address each other by their names, nor do they pronounce them. Their names are *Liá'i* to each other, but they may talk to and approach one another. The same restrictions apply to a man and his mother-in-law, and also to a woman and both her parents-in-law. The strongest *Liá'i* restrictions, however, obtain between a man and his wife's elder sister *(Uini'avétsa)*, this being the same term that a man applies to his own elder sister). A man is not allowed to approach her, nor even to touch any object belonging to her, and, especially, would a man avoid touching her *Rámi*, or grass petticoat, if it were lying about the house. He may talk to her, but only from a distance, and, of course, he does not address her by name, nor does he pronounce it in her absence. A man can approach his wife's younger sister *(Nábu)*, but her name is equally tabooed to him. So are a man's wife's brothers' names. The sanction of *Liá'i* consists in the first place of a general reluctance to, and intense fear of, infringing the *étiquette* and doing the thing in a way that is essentially wrong and unacceptable by social rules and by the code of manners inherent in all human beings. This fear is very pronounced among the natives; they are extremely anxious to do the "right thing," in which respect they do not differ essentially from the civilized white man. In order to understand the psychological background of such purely customary—I might say such *mondaine* sanction—one ought to compare it with that of our own rules of *savoir faire*, and I think that most men would much more readily commit acts of extreme folly than behave in an outrageously incorrect manner in a drawing-room or ballroom. To transgress the *Liá'i*, or any kindred rule, would be for the native an act as improper as for a society man to appear in flannels at a ball or to omit his necktie at a formal garden party. We very often press the native for an explicit sanction or reason for some of his customary rules. "What, for instance, would happen if a man broke the *Liá'i*?" No wonder the native can give no answer, or simply says, "Our fathers did so, and so do we." This will appear much less obscure and specifically "savage" to us, if we remember that the natives live in very small communities, and that in consequence the quality and intensity of their public opinion or social censure is very much the same as that of a social circle of mutual acquaintances in our own society. The fear of being ridiculed, of being *gauche*, or eccentric, the keen desire to be correct, to do always the right thing, to be smart and *dernier cri*—all these feelings actuate the natives as they do the white man in reference to his social *milieu*. A white man would be just as much puzzled if he were asked to adduce the reason, origin, and sanction of the rigidly observed custom of wearing a white necktie with his full evening dress and a black one with his dinner jacket. "Everybody does it; it is the right thing to do," is alike the answer both of the brown and of the white man, and neither can produce any other sanction than that it is the rule of his social circle. When pressed, my informants said that a man transgressing the *Liá'i* unwittingly, for intentionally nobody would dream of doing so, would expect some kind or other of illness to befall him.

It is to be noted that *Liá'i* taboo on relatives-in-law is much more stringent than the *Góra* on the names of parents. Several of my friends did not mind mentioning in my presence the names of their fathers and grandfathers, acting on the principle that "New Guinea custom has little bearing upon one's behaviour towards a white man." But they would not apply this principle to their father-in-law's name. Wishing to ascertain the extent of their reluctance, I tried to tempt *Pikana*, a particularly greedy and sophisticated middle-aged Mailu—with the elder and more genuine gentlemen, such as my friend *Papári*, I would not have attempted the experiment—by offering him successively increasing quantities of tobacco. It was only at five sticks that he began to waver, which means that his reluctance was very great indeed.

The parents-in-law belong to the circle of relatives who receive the *Veréni* gift of food (comp. this chap., sec. 1).

Essentials of Marriage Contract.—Besides its ceremonial side and its conditions of validity, and besides the general duties which are imposed upon a man towards his relatives-in-law, marriage establishes a personal relationship between husband and wife. And perhaps the most essential data concerning marriage are those bearing upon the reciprocal duties and privileges, the general character of their feelings towards each other, and all the facts characteristic of their respective status. In this place I shall state those details very briefly, as several of them are described in other paragraphs ("Domestic Duties," in sec. 1 of this chapter; "Division of Labour," in chap. iv.).

Marriage is in Mailu patrilocal; the woman moves to her husband's house, lives with his parents and with his brothers and their families. In all her domestic duties she has to co-operate with her mother-in-law and with her sisters-in-law, and thus she becomes, in this respect, a member of her husband's house, and becomes its co-proprietor, in so far as she continues to live in it, even after his death, especially if she has children and does not think of marrying again.

She works in her husband's garden, and becomes, in fact, a co-proprietor of this also, since after her husband's death she continues to use the garden for herself and her children. She even shares her husband's economic magic, which is a form of property that is greatly valued (comp. chap. v., sec. 2). Whatever he acquires by hunting and fishing, and whatever she acquires, go to their common household, and is used by them in common, subject to the deduction of the *Vevéni* and other portions communistically distributed among various people. They have their meals together, except when in olden days the man occasionally ate his food at the *Dúbu.* The two belong to each other exclusively in sexual matters, though, of course, for adultery the crime and punishment are much greater in the case of the woman. But it must be noted that there was no opportunity for a married man to enter into an intrigue without incurring the blame of public opinion and without setting at naught his domestic peace. And, as far as my knowledge goes, the unmarried men would be very keen to find him out and to set in motion against him all the adverse forces of offended public opinion for thus encroaching upon what they considered to be their own exclusive right. In public the married men shun the other sex even much more rigidly than the bachelors.

Husband and wife sleep together round the same fire, except, again, in those cases when a man slept in the *Dúbu* in order to observe sex taboos, or when the woman has her period, or for some other reason.

In the matter of marital authority there seems to be a great independence on the part of both partners. I was unable to hear of, or to observe, any evidence that a man ever tyrannized over or bullied his wife, neither do the men appear to be often "hen-pecked." During the many times I sat and talked with natives in their houses I observed that the women kept apart, especially if other men besides the owner of the house were present. But if a woman approached there was never the slightest sign of shyness or fear in her manner towards her husband, and I never saw any one of them as much as rebuked or spoken to unkindly by her husband. On the contrary, there were present all the signs of friendly and unconstrained relations between them. And this was, if anything, more pronounced in the case of old couples. As to the scope of real authority, *i.e.*, of the limits within which a man could impose his will upon a woman, I think that these were very restricted. All the services required by a man from his wife were strictly regulated by custom, and even the sphere of their mutual personal contact was defined. Whether a woman desired it or not, she was usually free from her husband's presence, his bad tempers, and of his possibly arbitrary wishes for the greater part of the day.

The question arises to what extent is the mutual affection and regard which undoubtedly obtains between the two partners, due primarily to erotic love. It seems to be beyond dispute that this feeling exists among the lower races, though neither in their art nor in incidents in their lives could I find signs of its expression. Nor could I find evidences of what may be called romantic sentiment. I know, however, of several instances of acute dislike, in which girls had either to be actually forced to submit to the affianced husbands or to run away in order to escape a distasteful match.

On the other hand, strong and decided inclinations exist of which I could record several instances. So also the intrigues of married women, which occur fairly frequently, point to the existence of passions willing to run considerable risks and able to overcome substantial obstacles.

As it is evident from previous passages, sexual jealousy is very pronounced, and this sentiment is not based only upon the sense of ownership established by marriage, since it exists very markedly in respect to the *Ui'ui* relationships.

Polygamy is very infrequent; I have only one polygamous marriage to record amongst the total number of marriages in the pedigrees of Mailu village. One very strong obstacle to polygamy would be the duty of providing pigs for the wife's family. This duty is onerous enough for a monogamist, and the obligations of polygamy would be surely beyond the powers of an average man.

4. CHILDREN AND THEIR PLAY.

Birth and Infancy.—The information available on this heading is unfortunately very scanty. I was not able to speak with any woman, and men are not good informants on the subject.

What I know about native ideas concerning conception has been said in the last paragraph. During pregnancy the woman has to observe a general fish taboo *(Oribe tóra).* If she did eat fish the child would be injured. She can, however, eat boiled food and drink fresh water. The pregnant woman *(Amara orá'i)* sleeps in the house near her husband, but they do not cohabit. Sexual connection during pregnancy would kill a woman. At the birth no man may be present, not even the husband. He would be too much ashamed to see it. The mother and the mother-in-law of the puerperient, as well as her sisters and sisters-in-law, are present, and they act as midwives. There are no specialists in this art in the village. If twins are born, one, usually the second, is killed as a rule. The reason given is that a woman cannot properly feed two infants, and that to carry them about, etc., would give too much trouble. Infanticide would be practised in the case of illegitimate children—which, as said before, are extremely rare. In would be done also in the case of a man deserting his wife. If a woman had a series of girls, or a series of boys, and she wanted a child of the opposite sex, she would kill a newcomer if it were of the undesired sex. If the mother dies in childbed the offspring is buried alive alongside the mother. The form of infanticide is, as a rule, strangulation of the baby.

In Mailu, as among all the races on that level of culture, suckling goes on long after the child is able to eat other food—till about three to four years after birth.

In infancy children are carried about by their mothers and very often by their fathers. The method of carrying children by the women is to seat them astride upon the protruding upper edge of the petticoat, the child clasping the mother's body with both its legs and the mother holding it with one arm (see pl. xxxiii., fig. 2). Both parents nurse the child and fondle it. The operations of nose and ear piercing are performed in infancy (comp. chap. iii., sec. 1).

Childhood and Initiation of Boys.—Children live with their parents. They are very independent, the parents interfering little with their games and inclinations. In fact, I observed, and my observation was endorsed by Mr. Saville, that the elders hardly ever give commands to their children, preferring to ask them to do what they wish, in fear lest refusal should compromise their authority and prestige. Chastisement, in any form, seems never to be used to children, except perhaps in a fit of impatience.

The stages of childhood and adolescence are marked by few incidents. At the age of about three to four the girl gets her first grass petticoat. At a slightly later stage the process of tattooing (described in sec. 1) begins and ends with the tattoo on the face which coincides with the marriageable age.

The boys go about without any garment for a much longer time. They get their perineal band at the age of about eight to ten years, and there is a small initiation ceremony *(U'au'áu)* connected with this event. The eldest boy is given his *Sihi* (Motu name for perineal band) by his maternal uncle *(Aue)*, with whom the boy's father exchanges some gifts. The younger boys get their *Sihis* from the first-born, and there is no exchange of food. The initiation ceremony seems to have been more elaborate in former days, when the *Dúbus* existed and when the white man had not yet suppressed the institution of head-hunting, with which this ceremony was apparently connected in some way. I was told by *Papári*, a fairly old man and the best informant in Mailu, that in the olden days the initiation was more elaborate, being performed when there was an enemy's head available. In the preparation of the head, the boy to be initiated used to lend a hand, and this formed part of the initiation ceremony. On such, and only on such, occasions would the ceremony take place in the *Dúbu*. The boy spent about a fortnight in the *Dúbu* previously to the ceremony, and was not allowed to leave the place. He had to keep the typical taboo—*i.e.*, abstention from boiled food and fish—and his food was handed to him by men. If the boy wanted to leave the *Dúbu* house for any necessity he could do so by night, or if he did so in the daytime he had to cover himself completely with mats; neither was he allowed to comb his hair.

The boys who were thus undergoing the initiation taboo used to remove the skin and flesh of the enemy's head, which was part of the process of preparing it for the collection in the *Dúbu* (described in sec. 6 of this chapter), and very likely boys at the suitable age would wait until there were a few heads ready for the head-hunter's collection. On the other hand, if such were at hand some boys might be invited to undergo the initiation, so that the two performances might coincide.

The ceremony itself was performed after the period of the taboo in the *Dúbu* itself. After that the boy was no more called *Támaru*, but *U'áu*, which corresponds to "young man." On the day of the ceremony there was a dance.

At other times the adoption of the perineal band usually took place on one of the *Oró'u* (big canoes). In such cases the ceremony would be connected with the big feast *(Madúna)*, and take place just before, at the time when the canoes had returned from *Aróma* laden with pigs and betel nut for the feast. The ceremony is always accompanied by a small feast, for which a pig was killed. The pig is previously given by the boy's father to the maternal uncle. In the case of the perineal band being given by the boy's elder brother the pig is killed by the father.

At the exchange of gifts which takes place between the father and the maternal uncle it is the latter who profits.

Games and Amusements.—As said above, the children's life is fairly free. From the age of about five they play and roam at will, and the bigger boys and girls may go some distance away from the village. Even at that stage the separation of the sexes is marked, for the boys and girls roam in separate groups, hardly mix in their play, and very often have altogether different ways of playing.

Many of the children's games have a clear educational value. They consist very often in the imitation of the activities of their elders, and the children often use toys and implements made, *ad hoc*, with a considerable amount of labour. The elders, usually parents, take part in the play and teach the children, with evident interest and care, how to sail a toy canoe or use a toy net or fish spear. On Mailu Island these educational games refer mainly to sailing and fishing, as might easily be expected in a community of sailors and fishermen. But imitation of native dancing—which becomes a very important activity in the later life—and imitation of spearing belong to the class of educational plays.

These are children's games having an educational aspect. Children also join their parents in their activities, first in play, then more and more seriously, thus imperceptibly acquiring the arts of mature life. The girl sits near her mother and watches her making pottery; or, with a small stick, imitates her actions in digging the ground, or helps her in peeling the vegetables and preparing the food. Small girls join also their mothers in searching for *frutti di mare*.

The boys join their fathers on hunting expeditions, and when they go with them to sea they observe and lend a hand in managing the big canoes.

Besides these games with an educational aspect there are a few games pure and simple. Thus catscradles, played all the year round, especially by women, form a very favourite pastime. There are also a few games like tug-of-war, etc., played by boys and girls separately late in the afternoon and on clear moonlight evenings. As these correspond in a way to dancing, the older boys do not take part in them; but full grown-up women enjoy them side by side with small girls.

Toy Boats, and Sailing Games of the Boys.—The play with boats must be described more fully. There are two kinds of boats made for the special benefit of boys—small models of the large, crab-sail double canoes (*Oró'u*), and small outrigger canoes (called *Káro*), so small that no grown-up man could sail in them, but large enough to support one or two urchins. In these the boys sail, usually within the reef which runs not far from the beach. But sometimes they venture further out, even in fairly rough weather, in a way that, for skill and daring, arouses wonder and appreciation even in the unfeeling breast of a field ethnographer. The time for these escapades is usually at the break of the seasons, when the south-eastern wind changes into the monsoon, and undoubtedly they afford the means of learning how to manage a canoe and a sail, which latter is very often used. They also learn how to bail out a dug-out when it has sunk by water-logging. They all swim very well.

The models of the *Oró'u* are used in play. Whole days are spent in shallow water by boys in following their canoes as they sail across the small bay in front of the Mailu village (see pl. xxxiv., figs. 1 and 2). This play with models of the large boats, called *Ede'edé'i*, is done during the north-west monsoon season, as at that time the Bay of Mailu is absolutely calm. The models are fairly accurate, even in the ornamentation, with one exception: the big *Oró'u* consist of two boats joined by a platform and lashed together (comp. chap. iv., sec. 4), while in the model one of the dug-outs is replaced by an outrigger float. In this way the boys get acquainted with the construction of the *Oró'u*, though the models are made by the elders.

Another sport very much enjoyed by children is fishing with a miniature of the *Távita orá'i* net (called *T. o. kínovoi*, which means a small net of that name), the father showing the boy how to use it. Small fish are caught this way, to the great delight of the boys. Over and over again I saw boys playing at fishing in this way for hours together. Miniature models of the other small nets *(Gébi orá'i)* are also made. The fishing corresponds, on a small scale, to the fishing done by the men with these nets (comp. chap. iv., sec. 3).

Small fish spears *(Udi kínovoi; údi* meaning fish spear) are made for boys. They are taught how to use them, and they often set out by themselves for fishing expeditions. Those toy spears are about two-thirds the size of the real ones, and they are used by boys eight to twelve years old.

Some skill in throwing spears may also be possibly acquired by a game (Motu name, *Kíki)* in which two boys try to spear soft thick twigs planted in the sand with small-pointed sticks (about 40 in. in length).

During the dancing season groups of boys, using small bamboos as drums, sometimes perform for hours in imitation or caricature of the grown-up men's dance. The nearer the feast the more zealous grow the boys, who in this respect follow the lead of the grown-up men.

The children used also to play a kind of tug-of-war and several other games, the details of which I failed to record, though I saw them performed several times. In one a line of girls "wind themelves up" into a sort of tangle, which is afterwards unravelled; in another two rows of girls face each other and join their hands. A small girl is taken by the arms; she is balanced on the joined hands of two girls, and then has to spring on to the next pair and so on. These games are accompanied by songs.

5. REGULATION OF PUBLIC LIFE; LEGAL INSTITUTIONS; *Góra* (TABOO).

General Remarks.—When dealing with abstract conceptions, referring to social life, such as law, religion, authority, etc., it is necessary to be extremely careful not to project our own ideas and associations into native life and thought. One must consider how far our terms—law, legal, criminal and civil law, etc.—are applicable to native conditions. To use these terms in the strict sense in which they are defined in jurisprudence would be an obvious mistake. To use them loosely and without troubling as to their meaning would be essentially unscientific, because, in the case of the field ethnologist, it would show that he has not been considering very carefully where to look for his facts and how to group them.

It will be desirable to explain the manner in which the legal aspect of native life was sought for, without, of course, pretending to give a satisfactory and universally valid definition of law, etc. A field ethnographer has to describe facts in their essential aspects; that means to select. And selection implies the possession of theoretical principles of classification—definite *criteria* as to what is essential and what is not.

In collecting facts about law and legal institutions the following considerations have afforded the guiding principles. In every community there exist fundamental rules which must be observed. The infraction of these rules is a lurking temptation, and there are always individuals who succumb. As a preventative, or reaction, to this there exist some measures of restriction and redress; broadly speaking, some restraining forces. To discover the rules, the possibilities of infringement, the restraining forces, to classify them, following as closely as possible the conditions of native social life, and to find out the natives' own point of view in these matters—all this constitutes the ethnographer's task under the heading of law.

Broadly speaking, the most elementary of the social rules are identical in all societies: they protect a person's body from injury and they guarantee a certain amount of personal freedom. Murder, bodily hurt, assault, rape, and other attempts on person or liberty are considered to be wrongs in all human communities at the top as well as the bottom of the scale of development. Again, there are everywhere some rules protecting a man's personal property. The infringement of any of these rules is resented by the injured person and by the social group to which he belongs—family, clan, village.

This is one source of criminal law. The other springs from the public resentment which follows the violation by the individual of the essential rules which constitute the given social structure, as, for instance, the rules of exogamy or of religion, etc.

These facts constitute the basis of criminal law. In this broad sense the conception can be applied to native societies, and the distinction between civil and criminal law can be maintained. Under civil law in a native society we can understand the set of rules regulating all the normal relations between persons, as kinship, marriage, economic co-operation and distribution, trading, etc.; and between persons and things, property inheritance, etc. Civil law being thus a set of rules regulating the social mechanism in its stationary, normal course; criminal law being the safety arrangements, putting things aright whenever there is any hitch in their normal course.

Collecting and describing facts from this point of view an ethnological inquirer is not likely to violate the conditions of native life, because the ideas and principles of classification used are sufficiently broad and plastic, though not loose, to be adapted to any social conditions, and they are not borrowed from European jurisprudence.

But although this might do justice to native institutions, and might inform the reader as to the legal aspect of native sociology, it would give no information about native legal ideas. By discussing matters with intelligent—sometimes extremely intelligent—natives, and by letting them compare native social rules with the introduced European system of administrating justice, I came to the conclusion that the conception of criminal law, or of civil law, or of the distinction between the two, could not find any counterpart in native ideas, not even in a rudimentary form. Nevertheless, the natives use words for forbidden; they have their systems of taboos, which possess a distinctly legal aspect, though this is mixed with others as well. In order to do justice to explicit and fundamental native ideas about rule, prohibition, and sanction, it will be necessary to describe their system of taboos and try to distinguish between its legal and non-legal aspects.

Rudimentary Measures, corresponding to Criminal Law.—The data concerning law will not be described in this section. Civil law comprises all the rules governing social life. Those rules, so far as they are known to the writer, are stated, *passim*, throughout the description of the activities and institutions. I have tried also to state their stringency and universality; to describe the function and the mechanism by which they would be maintained if infringed. It would be mere repetition even to enumerate these details in this place.

In collecting facts relating to criminal law one is confronted with serious difficulties. It is clear from what has been said above that the ethnographer cannot put his questions direct, but has to procure a certain number of actual, concrete facts, draw from them his own inferences, and describe them in his own terms. Now it is especially difficult to get authentic facts referring to crime, such as murder, rape, theft, etc. The white man's influence has been operating in the district for over thirty years, and the younger generation of natives are at present imbued with European ideas of justice—individual responsibility, value of human life independently of tribe, clan, etc. And crime, from the point of view of the native conditions, is certainly less frequent now than it was before. On the other hand, the native thinks that these topics had better be avoided, and is extremely careful not to talk too much about them without obvious necessity, especially to a man whom he knows to be on good terms with the local missionary and resident magistrate. Thus accounts of the little crime that is still going on and tales of the good old times are not willingly communicated.

For such reasons I was unable to learn much in the way of authentic stories about murder, adultery, and theft as they happened in olden days, and about the way in which these crimes were punished and avenged. I obtained a few hints, however, which allow me to give a broad outline of the existing state of things. Murder within the village was uncommon, but there are cases on record. There were quarrels at feasts about pigs, and sometimes also over women. There were resentments in the village, in the clan, and in the family. Thus, not long ago, an influential and fairly intelligent native killed his own mother, being extremely worried about a matter with which she had nothing to do, and somewhat annoyed by her request that he should stay at home and not enter the white man's service. This modern Orestes got three years in prison. The natives did not approve of his action, but when I inquired what would have happened in the olden days, it was clear that no punishment would have been inflicted, there being no man or social body whose business it would have been to punish the offender. Cases of such murder within the family or village, undoubtedly closely allied to the running *amok*, seem to have occurred in the past. In a case like that just mentioned, when the victim belonged to the man's own family, and when there was nobody to resent the loss and the wrong done, the murderer would have escaped scot free. The public resentment against him would not have been strong enough to ensure actual punishment, and if the man had nerve enough to get over the shock, and live down the subsequent reproachful attitude of his fellow-tribesmen, he could continue his life in peace and quiet.

As said, there was no central authority which would spontaneously and automatically deal with the offender. The legal function did not enter into the duties and privileges of the clan chief; but if the injured person belonged to another clan, or even to another family, the relatives and clansmen would take things into their own hands. If they were strong enough, they would kill a man of the offender's clan or family. It seems, however, that this sort of justice did not interest the clan so much as the family in the narrower sense of the word—the brothers, in the first place, the father, and the first cousins. If those were not strong enough, they could "hire" a man or men by payment of pigs, arm-shells, and food, to do the business in their place. I gathered that in such a case matters would be considered as squared, and that it would not be followed by an everlasting *vendetta* within the village.

Adultery on the part of the woman was punishable by death, if the couple were caught *in flagrante delicto*, or if the husband felt strongly about the matter. Under such circumstances he would have been considered to be within his rights, and would not suffer retaliation. In less flagrant cases of adultery the whole affair might be settled by payment, the woman possibly going over to the co-respondent. In that case the bridal price would have to be repaid to the former husband, in addition to an atonement gift.

Theft did not seem a very serious offence, except when things were tabooed (see below). Otherwise the man would be possibly chaffed and would acquire a bad name for stealing, which is considered rather in the light of a joke than as a serious shortcoming.

Perhaps the most important of criminal offences, in Mailu as in all other Papuo-Melanesian tribes, was the practice of evil magic. As far as I could ascertain, however, there were not many magicians in the Mailu district. Nevertheless, there were always a few men believed to possess powers for good and evil, but much more distinctly for evil (comp. chap. v.). I do not think, however, that there would be any means of redress against their evil magic. If attacked by one of them, people would be much more likely to try to propitiate him by gifts. Whether these men, who undoubtedly wielded much more authority than anyone else in the village, were ever appealed to for the administration of justice, I am unable to say in the case of the Mailu, though I have very positive confirmatory evidence in the case of the tribes of the Central Division.

The nature of the punishment for crimes when the offender was from another village will be dealt with in the next section. In this case crime was nearly always evil magic.

Taboo (Góra).—The word *Góra* means *taboo* in its most general sense—*i.e.*, corresponds to the word *forbidden*. If one wishes to say that it is not allowed—as used to be the case in intertribal wars, for instance—to go to another village, one says this place is *Góra*. Thus this word is not only applied to taboos with supernatural sanction, but to all interdictions in general, even if they be imposed by the nature of things and not by the will of men. The word *Góra* is used also to denote the signs, usually consisting of coconut leaves, which were put up in connection with taboos. Such signs, however, do not in all cases imply a taboo. Thus the term *Góra* has a wider range than the word taboo. On the other hand, the most important class of taboos—the food restrictions—are called *Tóra*. Thus a spot is *Góra*, the coconut trees are *Góra*, fish is *Góra*—as long as the interdiction refers to fishing. But the coconuts are said to be *Tóra*, so is the fish and any other form of food. Thus *Ama tóra* means coconut taboo; *Oribe tóra*, fish taboo; *Tsebére tóra*, a taboo on taro.

I shall first describe all the facts comprised within the native idea of *Góra*, and then shortly discuss them.

The most important forms of *Góra* refer to the coconut. The coconut stands also in an especially intimate connection with the *Góra* institution, since it is used almost exclusively for the various *Góra* signs, or, at least, it forms the most essential and characteristic element of almost all of them. As mentioned before, the term *Góra* applies both to the condition of the coconut plantations for the time being and to the signs which indicate usually this condition. The coconut palms become tabooed and *Góra* signs are erected on two occasions—death and feast.

For some time after the death of a man his own coconuts, those of his family, and, in certain cases, of the whole clan become taboo. But there was a strict distinction between the trees belonging to the man and his relations (the actual mourners) and the trees belonging to the other clansmen. In the first place, whereas the former became taboo under any circumstances, the latter were tabooed only in the case of an adult and influential male. And then there was a still more important distinction—the dead man's own trees and those of the mourners (the *Nanáma and Do'á'e* people; comp. chap. v., sec. 4) were tabooed automatically by the presence of the dead man's body. As will be described in detail hereafter, the body was buried either under the house of the deceased or among his coconut palms. The body and the grave were the symbols of the taboo. They protected the nuts magically, the dead man's spirit was angry when anybody touched them, and he punished the culprit by the same penalty which was attached to the other *Góras*—the man became unlucky in fishing. It is very important to note that the taboo was called in this case *Nebúru*, and not *Góra*. Thus the dead man's coconuts were called *Nebúru áma*, and the grave was said to be the *Nebúru* sign. And it was emphatically affirmed that the presence of the body was quite sufficient to establish the taboo, and that never were any *Góra* signs erected among the trees of the deceased or of the mourners. But the presence of the body was the *conditio sine quâ non* of the *Nebúru*. Of this I was able to observe an interesting concrete case. About four months previous to my arrival at Mailu village, Bú'a, the former village constable and apparently by far the most influential man in the village, died in the jail at Port Moresby. His body remained there. As he was a very important man, not only his relatives, but the whole clan—and many men from the other clans—observed coconut taboos on his account. Now, under normal conditions, his and his mourners' trees would have been *Nebúru*, and no *Góra* would have been placed among his trees As his body was not there, however, a *Góra* had been erected in the middle of his plantations, and these were said to be *Góra*, and not *Nebúru*. Thus his body, and his spirit, being far off, the *Góra*, with its inherent magical sanction, had to be erected. When the body was buried, not in the coconut grove, but under the house, as was sometimes done in the olden days (comp. chap. v., sec. 4), it nevertheless acted as a *Nebúru* token and sign of taboo, because it was near by. As a matter of fact, the coconut plantations were never far away from the village.

A *Góra* was put up by all the other people who mourned for the man (these were called *Mágu ragu'ái*), but were not the chief mourners (*i.e.*, belonging to the *Nanáma* and *Do'á'e* groups). Also by all the other clansmen and tribesmen who were not mourning, but who wished to honour the deceased if he was a "big man." The *Góra* sign consisted either of a vertical sapling or of a kind of gallows, composed of two verticals and one horizontal. Both used to be decorated with coconut leaves; in fact, they had to be young leaves of a small coconut tree. On coconut *Góras* the young leaves are said to refer directly to coconuts. Thus I saw a mixed *Góra* standing in the midst of a grove of mixed coconuts and betelnuts. On it were coconut leaves, which were said to refer to the coconuts, and betelnut stalks as a token of the betel. But it must be noted that some *Góras*, having nothing to do with coconuts, are also decorated with coconut leaves.

When a *Góra* is to be erected the owner of the palms gives away a quantity of nuts, to be eaten by the young men and boys of his clan. Then the *Góra* is erected, and the following spell is pronounced by the owner:—

"Bó'i	*éra*	*góra*	*émegi*	*óm*	*náma*	*áma*
spirit	this	gora	man	a	some	coconut
ítsi	*bána*	*bó'i*	*tseíba*	*bó'i*	*óre'óre*	*tseíba."*
eat	time	spirit	do (act)	spirit	angry	act

Which in free translation would mean:—"O spirit! When a man eats this tabooed coconut, O spirit, act; O spirit, be angry and punish him!" The spirit thus invoked would be one of the ancestral spirits of the owner. His *rôle* in protecting the tabooed coconuts is quite analogous to that of the recently deceased man towards his *Nebúru* palms. The spirits in both cases get angry *(Bó'i óre'óre*, an expression used often to design ill-luck in general; in Motu,

Diráva díka)
spirit bad, angry).

(comp. chap. v., sec. 1), and to prevent the offender from doing good fishing, particularly with the big nets *(Gaúma)*, but also with the smaller ones *(Orá'i)* (comp. chap. iv., sec. 3).

Thus in both cases the taboo is enforced by a supernatural sanction—by the fear of the evil results, automatically following the offence. It is to be noted that no spells are uttered to the spirit of the deceased in order to make him protect his own coconuts; evidently he takes very good care that nobody touches those which are to be eaten at his feast, or are at any rate associated with his family's mourning duties. On the other hand, the spirit who is not personally interested in the proceedings must be invoked to play his part. The *rôle* of both spirits seems anyhow a very impersonal one; they are merely mechanical factors, bringing about, as an intermediate agency, the evil results inherent in the breaking of the taboo. They have no initiative in dealing out the punishment, nor is there anything left to their personal choice, and, on the other hand, a man violating the taboo would have no personal fear of the anger of the spirit. The natives are in general very little afraid of ghosts, though they dread darkness and its evil powers (comp. chap. v., secs. 1 and 2). The men are afraid to break the taboo purely and simply in order not to lose their fishing capacity, and from any other point of view the personal insult to the spirit, and its consequent annoyance, would not apparently matter. No man would with full knowledge violate a taboo, either a *Nebúru* or a *Góra;* if he unwittingly does so the punishment strikes him in the same form, without regard to his motives. The culprit would, however, have no other direct social punishment to bear; he would not be exposed either to ridicule, contempt, or anger.

The *prima facie* object of the *Góra*, admitted by the natives and apparent in its most obvious function, is to prevent the coconuts from being eaten and then to ensure a plentiful supply of nuts for the mortuary feasts. It must be remarked, however, that the *Góra* arrangement overshoots its mark, as an enormous amount of nuts become damaged and absolutely useless before the feast comes on.

So far we have spoken about the *Góra* and *Nebúru*—*i.e.*, taboos imposed upon coconuts on the death of a man, symbolized either by the man's body and grave, or by a special sign enforced by the man's own ghost or by a spell-bound ancestral spirit—both of which, in a purely mechanical and automatic manner, and unmoved by propitiation or deflected by wrath or insult, work certain mischief upon the offender.

Similar taboos are imposed when there is a big feast, independently of the death of anybody of importance. In that case there is no intrinsic reason why the coconuts should be respected by the whole village or by a clan, and a substitute for such a reason is created by erecting a big taboo sign in the village. This sign is also a *Góra*, called *Tóna góra*. The erection of the *Tóna góra* is asociated with the construction of a series of simple *Góras* in the palmgroves of the people who have to contribute to the feast.

When a big *Madúna* feast (comp. chap. v., sec. 3) is to be held, a few months before the first festivities—*i.e.*, roughly a year or more before the main feast, the *Tóna góra* is erected in the village street, in front of the house of the ***Madúna*** master. He gives a small feast in his house, and then the trumpet-shell is blown and an incantation is uttered. In this they utter the names of different places, where coconuts are plentiful, and invoke the coconuts to congregate and be plentiful in their village. This is the spell:—

"*Gadá'isiu áma ee*——*e* (long drawn)
Bóna bóna áma ee——*e* (long drawn)
Gé'agéa áma ee——*e* (long drawn)
Dahúni áma ee——*e* (long drawn)

Gána áma tseri'áda
Evara aíba
Woyáu ligo woyáu láge."

The first words in the first four lines are names of places; *Ama* means coconut: *Gána áma tseri'áda* means all coconuts.

I did not obtain the full literal translation of the text, but the general meaning is obvious; the names of places rich in coconuts are called out—a kind of sympathetic verbal charm—and all the coconuts are invoked to congregate in order that the supply at the feast may be plentiful. Subsequently the other small *Góras* are erected in the bush in the same manner, and the same invocation is addressed to an ancestral spirit, as is described above for the death *Góras*.

The *Tóna góra* consists of a fairly high vertical pole, to which several coconut leaves are fastened.

It is to be noted that the *Tóna góra* is not erected on every occasion when a feast is given; in fact, it does not seem to be a very frequent feature. Whenever there is a fairly important death in the clan, or in the clans, giving the feast, and whenever the feast is at the same time one in the series of mortuary feasts, there is no *Tóna góra*. For this the *Nebúru* is sufficient. Nor is it erected on the death of a village notable.

Thus in the autumn and winter of 1914 there were feasts in preparation in *Kurére*, *Máilu*, *Loupóm*, and *Laruóro*. Amongst these I only saw a *Tóna góra* in *Laruóro*, where the feast was to take place in the winter of 1915-16. All the other places had *Nebúrus*.

It is obvious that the real sanction of the feast *Góras*, governed by the main *Tóna góra*, are of the same nature as the mourning *Góras*, since the same invocation is uttered to the same agencies. But the *Tóna góra* has no such sanction, and from the nature of its spell it is evident that its function is rather a magical one, to ensure a plentiful supply of coconuts. In this it is analogous to those other arrangements at a feast which aim at securing a plentiful supply of pigs for the feast (comp. chap. v., sec. 3).

Another form of *Góra*, erected in the street in front of the master of the feast (*Madúna*) is the *Móto góra*. It consists of a small square erection, composed of two sticks topped by a horizontal and covered with young coconut leaves, to which several of the large white shells (*Ovulum ovum*) are bound. This *Góra* has nothing whatever to do with coconuts, except as to the leaves with which it is wrapped. Neither has it anything to do with any taboo or prohibition. It is simply a pledge, each shell representing a pig promised to the master of the feast by one of his relatives or friends. There is no spell connected with it, and it is only a forecast of the future splendour of the feast, which in its preliminaries and arrangements is full of such glorifications. When several clans arrange a feast a *Móto góra* is placed in front of the houses of head men of each clan.

Besides the coconut, several other articles of food may be *Góra'ed*. Betelnut (*Wéni*) occupies a position in native life in many ways analogous to the coconut. At a man's death the betelnut palms are tabooed along with the coconuts, as has been already mentioned. As the groves of these two palms are usually contiguous, the same *Góra* spell serves for both, its comprehensiveness being only expressed by the attachment to the *Góra* sign of a piece of the areca palm.

The *Wéni góra* (betel, or areca nut taboo) is, however, also used in another case. When the nut is deteriorating in condition and becoming "soft like water," they try to improve it by putting on a *Góra* on the tree. This they do by tying a stick horizontally to the palm trunk and fastening some croton, or palm leaves to the point of junction of stem and stick. There is no spell, nor is there any taboo implied by the *Góra*, which is obviously merely a kind of curative charm. It is simply a magical *Góra*, and has no legal significance.

Quite similar in its essential is the fish *Góra (Oribe góra)*. It is put up in the water over the reef, and consists of a sapling with coconut leaves tied to it. This *Góra* is erected upon the decision, or advice, of the old and experienced men of the tribe. When fish become scarce in any particular place on the reef or near it the old men, or the head men of the clan owning rights (purely nominal) over the reef, decide to erect a *Góra* on this spot, and fishing there is tabooed for so long as the *Góra* is up. It stands for some three to four moons, and when upon investigation it is found that fish are plentiful again the fishing is resumed. The *Góra* would very probably be put up during a season when, in any case, there would not be much fishing done, as for instance in the seasons of busy sailing and trading. This *Góra*, although it involves a taboo, has evidently no legal aspect, and is merely a magical and economic contrivance. There is a spell uttered when the *Oribe góra* is erected, but I am not able to record it.

There are some minor *Góras* attached to fruit trees, such as the native mango *(Boróa)*, a fruit tree called *Gaméla*, and several others. They consist of a piece of palm leaf wound round the stem. They were said to be precautions against boys climbing the trees and eating the fruit before it was half ripe. The boys would be afraid to climb a *Góra'ed* tree.

The men of Mailu Island make no sago palm *Góras* in their sago swamps in *Léa* (see next chap., sec. 1): but when the sago is not good, "like water," the mainland *Mági* erect an *Odei góra* (sago *Góra*) on the path leading through the swamp. It is a pole with sago leaves bound to it.

I was informed that such a *Góra* also constitutes a kind of mark of proprietorship, but on the whole my information on this point is defective.

Besides the *Góra* there is another method of protecting property by means of a magical sanction. It is done by means of a conditional curse called *Onága*. When an owner is afraid of his coconuts being stolen, or suspects that they have been interfered with, he utters a spell and binds the coconuts together (with a piece of their own fibre, torn off the husks). The man who has stolen, or who should intend to steal, gets boils and swellings all over his body, and dies from this complaint, which also is called *Onága*. I was not able to record the spell, nor to obtain any details concerning similar protective measures which were said to be sometimes applied in the case of bananas and taro.

It is obvious that the native classification of facts embodied in the term *Góra* is by no means adequate from a scientific point of view. It brings together those which are only superficially similar and discriminates between essentially kindred phenomena. But this very circumstance makes the adduced data rather interesting, for undoubtedly such a quaint, and obviously antiquated, mode of using words and classifying facts points to a previous state of things which differs from the present. And linguistic survivals are perhaps the most trustworthy, since a word may be used in a somewhat inadequate sense without practical inconvenience. On the other hand, a social institution, when its function changes, must either adapt itself fairly completely to its new form of existence, and hence vary in its essentials, or it withers and becomes obliterated. I will not speculate upon the nature of the survivals embodied in the Mailu conception of *Góra*, and I wish only to point out briefly some of its peculiarities.

Góra, in its broadest and most abstract meaning, means taboo, rule, prohibition; it is distinctly the conception covering what we would call law in our society. In the more restricted and concrete sense, it implies a legal arrangement allowing certain goods to be protected against all consumption, and thus to be reserved for ceremonial religious purposes. It is never a symbol of proprietorship or a simple form of protection of private property, the latter function being performed by the *Onága*. On the other hand, some *Góras*, the *Tóna góra* and the fish and betelnut *Góras*, have a distinct magical function. One of them, the betelnut *Góra*, has hardly any legal aspect; the fish *Góra* involves a prohibition, and the *Tóna góra* is, in its legal aspect, only a sign that there are prohibitory measures elsewhere. The *Móto góra* has, again, neither legal nor magical aspect.

A few more words must be said about the previously mentioned food taboos, which the natives comprise under another word, *Tóra*. These taboos are met with on very many sides of social life—during feasts and economic activities; in some of the critical moments of human life, like initiation, puberty, and pregnancy; in relation to some sexual facts, and so on. These are mentioned in their respective connections, and will be only enumerated here in brief.

There are no tribal or clan *Tóras*—*i.e.*, there is no food restriction imposed upon the whole village or the whole clan. There exist, however, individual, hereditary *Tóras;* those descending in the male line, are closely associated with "white" magic, and will be dealt with in chap. v., sec. 2; they were also obligatory for people practising "black" magic and the healing art.

In addition there are a series of temporary taboos not attached to the person, to which all men and women are at times subject. Such are the taboos observed before and during the feast (see chap. v., sec. 3).

There are the taboos connected with sex practised by women—the menstruation and pregnancy *Tóras*, and there is the *Tóra* of initiation.

As the headman of the clan has to undergo the most strenuous taboos, and to undergo them more frequently than anyone else (*e.g.*, at the feast), the *Tóra* is also a means of social differentiation.

There are also some *Tóras* observed during certain economic activities (chap. iv.).

6. WARFARE: HEAD HUNTING.(42)

The external relations of the Mailu villages with each other have been outlined in chap. ii., sec. 1. On the whole, they were not friendly. The tribe was subdivided into sections, and each section, comprising several neighbouring villages, was waging a perpetual war against all the others. Their wars consisted either of systematically planned and prearranged raids, or of attacks on stray people whenever the chance offered. This did not occur very frequently, and though good care was taken by travellers, hunters, fishermen, etc., to make the opportunities as rare as possible, there was always the chance.

---

(42) The data covered by this paragraph are very scanty and unsatisfactory. This is partly owing to the intrinsic difficulty in obtaining authentic concrete accounts about war and fighting in bygone days, and partly to the fact that I was more interested in the social constitution of the tribe, and that my inquiries about war, etc., were less extensive and thorough than on several other topics. The type of Mailu fighting seems to be identical with that of the Port Moresby tribes, of which there are some very good accounts collected by Prof. C. G. Seligman in his oft-quoted work: chap. ix. (*Koita*), chaps. xli. and xlii. (Southern Massim). Broadly, as far as I can judge, these illustrate the fighting methods of all the tribes of the southern coast.

The mainland people, especially if a village was situated on the border of a "confederacy," were obviously exposed to raids, for whenever the mainland people ventured from their fortified villages, which were pitched on top of fairly high and steep hills, down to the sea shore in order to get salt, fish, or shells, they were exposed to the danger of meeting the dreaded Mailu islanders, who were frequently sailing about, and would not for anything miss an opportunity of securing a head or two for their collection in the *Dúbu*. On the other hand, the Mailu people, though practically safe on their own island, had to go to *Léa*, near Table Point, in order to procure sago. They used to hunt on the mainland near Magúbo (Greenway Point), and to go on distant trading expeditions, when they might be blown ashore and wrecked. It was from the mainland also that they obtained their timber. Thus the occupants of all of the Mailu-speaking villages were more or less exposed to the risk of falling amongst their foes in greatly superior numbers and of being killed.

They used, however, to take their precautions, for when engaged in economic pursuits away from the village and within the reach of enemies it was customary to station sentries *(Páiva)* in full armour and war-paint. This they did when felling trees in the bush, or when getting sago in an exposed swamp, as was the case when they went to *Léa*, where they were liable to be attacked by the *Magóri*.

The expeditions, or raids, might be carried out either by sea, which was the only way open to the *Máilu*, *Loupóm*, and *Laruóro* villagers, or they were made by land, as between the mainland *Mági*.

There were in Mailu special war canoes *(Bobóre)*. These were rather long dug-outs, longer than the usual *Gébo* canoe (comp. chap. iv., sec. 4), with an outrigger and float. The prow (called *Bobóre itsána)* was decorated with wooden carvings; the stern *(Aripara)* was not decorated. Each *Bobóre* had its own name and each belonged to a clan or subclan. The following are the names of some of the canoes and the clans to which they belonged:—

Clan name.	Subclan.	Name of the war canoe.
Mailu village—		
Bodéabo		*Karokóko*
Urumóga	*Diadúbu*	*Dariábu*
	Bánagadúbu	*Reumánu*
Maradúbu		*Olawáea*
Moráu *Oraido*		*Gominamánu*
Loupóm village—		
Gobudúbu		*Loubébe*
Boimarai		*Avareási*

When it was decided to make a raid there was a feast and a dance—the *Daúge* dance, as a rule. There were some men who had the decisive word in war affairs, and these were not identical with the clan headmen; and upon those going out to fight there was a taboo imposed called *Góbu.*

For purposes of defence the mainland people had tree houses or platforms—I could not definitely settle which—called *Lúmi.* The situation of the villages, which were invariably perched on the tops of hills, allowed the natives to control the approaches, and in order to make the defence more effective they built the tree fortifications on forked branches of the *Báni* tree. In these they used to keep plenty of spears and stones, and, in cases of need, men, women, and children used to take refuge in them and hail missiles on their adversaries. The most effective way of attacking such a fortification was to cut down the tree. On the average there were about four such houses in a well-sized *Mági* village, which consisted of some forty houses. The villages were also stockaded.

Another form of fighting must be mentioned—*viz.*, the fights and quarrels which seem to have been invariably associated with the feasts. Squabbles over pigs and women and personal resentments, assumed naturally an acute form at feast times, when nerves were highly strung and passions on the alert. Unfortunately, my informants left me with general assertions, and I was not able to obtain any concrete instances.

The weapons in Mailu were identical with those of the coastal tribes in the Central Division. The heavy wooden spear, made of one piece, with the point barbed on one side with fairly large barbs. Sometimes there were two or three longitudinal barbed ridges running towards the point. There was also the stone club, but I was not able to ascertain the specific forms used, as there are now no clubs in the villages, all having been sold out to curio collectors.

A broad wooden shield, nearly a square, with rounded edges and slightly tapering towards the base was used. It had a handle of rattan cane and was ornamented in front with a rather broad belt of plaited cane, ornamented with coloured feathers at the edges. The shield was called *Vétsi*, and was made of a soft wood *(Una)*.

An essential part of the war equipment, especially at times of organized raids, was the war dress. Besides the perineal-band, they used to wear round the loins a piece of rattan (lawyer cane). The head was decorated with a crown of cassowary feathers *(Gúia)*, or with the feathers of *Tsi'aí* (a bird of paradise). They used also to insert cassowary feathers in their armlets and in the belt. The face was painted all over, the left side red, the right white. A V-shaped ornament of these same colours was painted on their breasts; a white band passing from the front of the right shoulder down to the sternal notch, when it met a corresponding band in red (the painting was called *Umu*). On the ankles and below the knees strips of pandanus leaves were bound, and they wore the boar's tusk ornament *(Má'a)* suspended from a shell necklace *(Kéma)*. During fights, as during dances, they put the boar's tusk into their mouth. Sometimes, as amongst the tribes of the Central Division, the *Musikáka* (Motuan name) ornament— a flat piece of wood, inlaid with the red seeds of jequirity, edged with boar's tusks, and with a pair of eyes made of shell in the middle—was used as a "mouthpiece" in fighting. This ornament is well represented in many Museum collections.

The Mailu were not cannibals and, except on their island border, where their neighbours, the *Udáma*, possibly practised anthropophagy, they were not in contact with any cannibal tribe.(43)

They practised head hunting—that is, the killing of a human being, man, woman, or child, solely with the object of securing the victim's head. The body was left on the spot where the individual had been killed, and the head was cut off and taken to the village. The amputation of the head was done with a bamboo knife *(Kápakápa)*, which the warrior carried suspended from a string round the neck, the knife hanging down the back. The head was carried to the slayer's *Dúbu*, and there boiled in a pot, which was directly afterwards thrown into the sea. Then the skin and flesh were removed, and the skull, being thus roughly cleaned, was placed in the smoke and dried, so as to prevent the putrefaction of the incompletely removed soft parts. During this time the people used to prepare a feast, gathering bananas, taro, and cooking sago, fish, etc. When the skull was sufficiently smoked and dried it was prepared for hanging in the *Dúbu* by drilling a hole in the top of the skull, through which a string was passed. Then the feast took place, during which a dance, called *Ma'o*, was performed. In this the slayer, holding the skull under his arm, danced ceremonially.

The homicide had to undergo the usual taboo—that is, abstention from boiled food and fish—for a time after the act, and the violation of the taboo was believed to entail the complaint of abnormally enlarged testicles. During the feast he sang a special song, and he had also the right to wear white cockatoo feathers at the dances—a privilege which was highly valued, and which is now, in these degenerate days, impudently assumed by many a *miles gloriosus*, who has not even seen a man speared properly in all his life.

---

(43) On the west their neighbours were the *Aróma* people, who also were not cannibals. On the east their immediate neighbours, the *Bónabóna*, were the only Southern Massim who did not adopt this practice. The line of demarcation between the anthropophagous Massim and the *Bónabóna* runs between Fife and Farm Bays. The natives of the former did not eat human flesh, and the first village in Farm Bay *(Savúia)* did so.

CHAPTER IV.

ECONOMICS.

1. Land and Gardens.

Land Tenure.—There are two forms of land tenure in the Mailu district. The Mailu islanders (Toulon Island) possess only a very limited area for agricultural purposes, and they have accordingly a modified form of land tenure. Their gardening and their agrarian laws are of less interest to them than to those of the mainland *Mági*, and, having exceptionally good opportunities and capacity for fishing, they are also much less dependent on the produce of their soil. On the mainland, on the other hand, the question of land tenure is more important, not only because the natives there are nearly entirely dependent upon the produce of the soil, but because they have to deal with the normal conditions of the agricultural Papuan—abundance of land at the disposal of a fairly small community.

One has to use the legal conceptions of "ownership" with extreme caution when dealing with native conditions. Ownership in land means with us the exclusive enjoyment of all the real economic rights and all the privileges and pleasures one can derive from a certain portion of land, subject to a very limited state of control, such as forest and game protection, mining rights, etc. This form of ownership does not, of course, exist in New Guinea, and it is not exact either to use the term loosely or to try to find the nearest approach to the European state of things in the native conditions. The only correct course is to investigate all the rights enjoyed exclusively by an individual, or by a social group, with regard to a particular portion of land. As a matter of fact, in most tribes those rights are not all concentrated in one and the same "legal person" (social body or individual man). Some of them are vested in social groups (village community, clan), others are apportioned to individuals.

This is the reason why the problem of native land tenure, so extremely interesting from the sociological point of view, and so important for the administration of the country, has not been often correctly treated.(44) And in the purchase of land from the natives there have very often been great and serious difficulties, leading to loss of time and money on the one side and to irritation and a feeling of wrong on the other.

The description of the mainland Mailu land tenure will be given first, as it is the more important. Land ownership, in our full sense of the word, involves among others the right to exclude the land from trespass, and the exclusive right to some of the produce of the soil—such as water, clay, and minerals. Among the Mailu natives these rights belong to the village community as a whole. Each village has around it an area which forms what may be called its sphere of influence. On this area strangers could not trespass, on pain of being immediately seized and killed. Friendly neighbours could go through to the village, but they might not loiter, for fear of being suspected of evil magic and similar crimes. A stranger, whether friend or foe, is not entitled to any of the produce of the soil; he could not use a waterhole, or take clay for pottery or red earth for painting, etc. In villages near, or on, the sea shore, the adjacent beach and reef belong to this sphere of influence. The village community is the group in which these rights are vested, and, on the other hand, these general rights are not further apportioned and subdivided among the clans or individuals. This statement refers to the Mailu natives living on the islands (Toulon, *Laruóro*, and *Loupóm)*, as well as to the mainland villages.

Between friendly villages their spheres of influence are divided by recognized boundaries; but between hostile villages there seems to have been belts of country where nobody would have liked to venture.(45) Again, there were some tracts of country, or areas of economic importance, where several villages tried to exercise their economic rights, either in harmony or in strife. Thus the small island of *Abá'u*, in Cloudy Bay (now the seat of the Resident Magistrate of the South-Eastern Division), has a stone quarry. This seems to have been used by the Mailu islanders and by the *Loupóm* people, and by several other villages near *Abá'u* (*Domára* and the non-Mailu speaking communities in Cloudy Bay). Again the sago swamps in *Léa* were used by the Mailu, the *Loupóm*, and the *Magóri* (a non-*Mágí* village), who were not always on friendly terms with each other. So also the jungle near Greenaway Point (Mogúbo) was used by the Mailu for hunting and getting wood, and it was the garden land of the *Loupóm*.

---

(44) Even in Prof. Seligman's treatise, where, as a rule, everything is stated with admirable accuracy and lucidity, land tenure is not dealt with in a quite satisfactory manner. Speaking of the *Koita* he says, "Each man has his share in the *Iduhu* garden land, which descends to his children," etc. Further statements imply also the existence of individual land ownership in a fairly European sense of the word. Now the *Koita*, as the *Sinaughólo* and *Mági*—and I think all the Papuo-Melanesians—make their gardens not individually, but jointly, the whole clan making one enclosure, and the ground inside being subdivided among the clansmen. There was no such thing consequently as exclusive individual claims to any portion of land for gardening purposes. There was no subdivision of land among individuals, save in the exercise of certain purely nominal over-rights. As the natives, however, attach a great importance to these over-rights, they very often mention the name of an individual as the real owner or "boss" *(Biagúna kórikori*—"real boss," in Motu). Even the Motu, who possess very little land, have no individual garden land apportioned to a man hereditarily. This latter state of things (individual land tenure) I found only on Mailu Island. Among the Northern Massim, on Woodlark Island, I found a system of land tenure almost identical with that of the *Koita* and mainland Mailu.

Thus, in the use of the most elementary necessities (access to waterholes, use of wood and clay, and the right of free passage), the land is open to the members of a village community to the exclusion of all others. The right to make gardens is vested in the clan. Each clan makes its gardens collectively within one enclosure, and each clan has its own territory where it makes its gardens to the exclusion of the other clans. This seems to be the general form of garden land tenure. And my inquiries, made on several points on the mainland (in *Dérebai*, *Bórebo*, and *Banóro)*, led to the same conclusion. As this is the general form of land tenure among the Papuo-Melanesians, it may be assumed to be also the case among the mainland *Mági*. I had, however, such poor informants amongst these that I should have treated their data with extreme caution had they not been confirmed by other evidence.(46)

In *Loupóm* I obtained better evidence, but this instance seems to be exceptional. The members of the two main clans of the *Loupóm*—*Boimarái* and *Gobudúbu*—make their gardens communally, each clan making every year its own separate enclosure. But the soil is not divided between the two clans; it is used jointly and indiscriminately by both. It must be, however, understood that though one clan has for a time the exclusive use of a certain portion of the village lands, this must not be regarded as establishing a proprietorship. After two or three years the garden land reverts to the jungle, and thus again becomes at the disposal of either of the two clans.

---

(45) Since the establishment of European rule things have been considerably changed in this respect, as the natives are no longer afraid of raids and ambushes.

(46) The facts obtained about the Papuo-Melanesians of the Central Division are perfectly convincing and clear. I have visited a number of native garden lands, discussed the ownership in many cases of new and old gardens, and drawn sketches of boundaries and garden sites. I tried the same method of concrete instances in Mailu district, but my informants spoke Motu poorly and could hardly understand what I wanted, or else they were suspicious. Mr. Armit, the Resident Magistrate at *Abá'u*, who has been brought up in Papua, and knows the natives and their customs intimately, gave me the same statement with regard to the land tenure in the Mailu district.

Besides the general right to the soil vested in the village community, and the right to make gardens vested in the clan, there are some privileges vested in individuals. Such was, for instance, the right to give permission for hunting in a certain district, or to give the order for burning grass. There are many such privileges among the Papuo-Melanesians which, though absolutely devoid of any economic importance, yet appeal strongly to personal vanity, enhancing the sense of self-importance, and are, on that account, highly valued by the natives. It may be said, broadly, that at a native feast the "master of ceremonies" does not derive any material benefit from it; but yet the privilege of giving a feast is highly valued by the master, as it greatly contributes to the raising of his social status.

There is, of course, individual, real property in land in the case of—first, a man's own house and the corresponding village site, and, secondly, his coconut and betelnut plantations.

Thus to summarise this paragraph it may be said that the village community possesses all the most elementary rights over its territory—thoroughfare, use of water, timber, clay, and minerals. The right of making gardens is vested in the clan, whose members make communal gardens on their own portion of land. Again, there are individual privileges, such as taking the initiative in hunting, burning grass, etc.

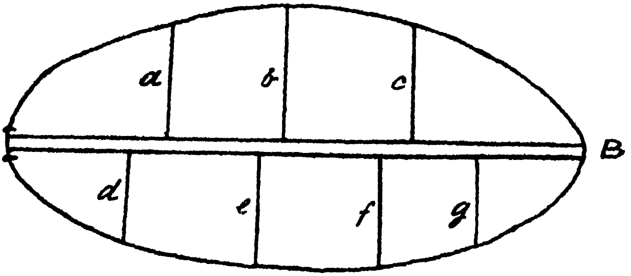
On Mailu Island the land is entirely subdivided amongst individuals, each man owning his own tract where he and his wife make the garden. When a man's children grow up he apportions to each male his respective plot of ground, which comes under separate cultivation as soon as the boy marries. In Mailu, practically all the rights to land are individual and hereditary. As long as the garden is not planted the natives walk freely on each other's ground. Firewood is collected by each woman on her husband's ground; clay and waterholes are used by the whole community jointly.

Garden Making.—It is difficult to give a description of gardening on Mailu Island as at the present day the gardens are very much neglected. Mailu village, which was always a trading community, has still further declined in this direction since the white man's rule (comp. sec. 4), and nowadays much vegetable food is imported from the mainland, with a consequent decrease in the interest taken by the natives in their gardens. Every man grows his coconuts on his own plot of ground, and cultivates part of it for bananas, taro, and yams. Low and slender fences are built round the plots in order to protect them from the wallabies, and as the soil has to lie fallow for a number of years only small patches are under cultivation. It would seem that in olden days, before the white man's advent, the island could not have been self-supporting, and this was my first idea, which was confirmed by the opinion of the Rev. W. J. V. Saville. But all my native informants, when questioned independently, contradicted this view categorically, all of them affirming that no trading for vegetable food was carried on with the mainland villages, and that the island was entirely self-supporting. I feel convinced that the native information is correct, and it seems the more probable, as the fish supply on the island is plentiful and the soil very fertile. Garden making on the island was not so difficult as on the mainland, as there was neither the high jungle to remove nor the bulky pig-proof fence to construct. The only hard work in Mailu gardening was the clearing of the high, dense thickets of *Lalang* grass (in Mailu, *Tsilówo)*. The grass is first burnt, and then uprooted. This latter was done by means of long, strong, and well-shaped sticks, pointed at the end. They were made of hard wood, and called *Gebátsa*. The men drive the sticks into the ground with vigorous blows, and, using them as levers, loosen the soil and turn up the sods. A row of men, some eight or ten, each holding a *Gebátsa* in either hand, work together, slowly moving backwards. In this way the ground is thoroughly broken up in a relatively short time.(47)

On the mainland the heavy work comprises the burning down of the scrub and the making of the strong palisade which protects the garden against the intrusion of bush pigs and wallabies. The big trees and the scrub are cut about midwinter, in the *Aurári* season. They are left to dry during the rainless season of *Lióro*, and at the end of this, just before the rains set in (December, January), they are burned. The fence is made round the cleared area, and consists of strong, round, vertical stakes, to which horizontal wooden bars are lashed with lawyer cane. Within this enclosure the ground is subdivided among the members of a clan, and the different plots are so grouped that access to each can be obtained through the garden. Diagramatically it may be represented thus:—

---

(47) I saw the process in the *Koita* tribe. It is well described in the Rev. H. Newton's book *(op. cit.*, p. 123), from which I have borrowed some expressions.



Plan of Garden.

A. Stile over fence.
A B. Main path.
a, *b*, *c*, *d*, *e*, *f*, *g*. Boundaries of plots.

The planting of the gardens begins in the *Avára kívonai* season, at the onset of the heavy rains. No special gardens are made for taro, yams, and bananas.(48) There is only one name for garden—*Madáva* in the Mailu dialect, *Iápa* in that of the mainland. Bananas and taro are planted in one place, yams and sugar-cane in another, the bananas and taro being planted first and the others afterwards. The garden, and the taro in particular, had to be watched carefully and weeded. The yams, and especially the newly introduced sweet potatoes, do not require such care, and this is the reason for the great popularity of the latter among the natives.

The clearing and fencing is done by men; the planting by both sexes. But all subsequent work, such as weeding, etc., is done by women exclusively. One result of this distribution of work is that an unmarried man does not have a garden.

A new garden is made every year, and the taro and yams are harvested during the first year. During the next year or two bananas and sugar-cane are gathered. The banana bunches are wrapped in leaves when they begin to ripen to protect them against flying foxes and birds. After three years the fence decays, the garden is open to wild pigs and marsupials, and the natives make little more use of it.

If the ground has proved fertile and the crops have been a success the natives make the next year's garden near by; but if the soil has proved to be unsatisfactory or "unlucky" it is made at some distance in the scrub. I was not able to find that any omens were used in choosing the spot for the garden. The natives possess a great knowledge of the soil, and know, by the nature of the wild jungle, whether taro, bananas, or yams will succeed. The size of the garden depends *ceteris paribus* on the amount of yam eyes, taro tops, and banana seedlings available for planting. They also plant in their gardens some of the aromatic plants worn in armlets as perfumes and for decoration, as well as those yielding the poison used for stupefying fish. Of recent years they often plant the introduced pawpaw and pumpkin.

---

(48) In the Central Division each of the *Koita*, *Motu*, and *Sinaughólo* clans makes two, or even three enclosures, and special gardens, designated by special names, are apportioned for bananas, taro, and yams.

Magic used in garden making will be described in chap v., sec. 2.

When making new gardens sex taboos are observed, and in olden days, when the *Dúbus* were in existence, the men slept in the *Dúbu* and the women remained in the house. At the present time the men sleep in a bachelors' house, or else the men club together in one house and the women in another. It is considered that anyone not observing complete sexual abstinence when taking part in the making of new gardens would blight the crops.

Another important agricultural activity is sago making. There are sago swamps at the bottom of the deep valleys at the foot of the hills near the coast, on which the mainland *Mági* villages are perched. Thus all the mainland villages had their sago swamps. One such swamp might be used for sago-making by several neighbouring and friendly villages. For example, the villages of *Bórebo*, *Dágobo*, *Unévi*, and *Pedíri* make sago in the same swamp, which was situated in the valley at the foot of their respective hills. In the swamp there seem to be boundaries between the spheres of influence of each village, but I was unable by inspection to ascertain the existence and nature of these boundaries. At any rate, I was assured that trespass over these boundaries, or disputes between the villagers about sago have never occurred.

The Mailu islanders had their sago swamp near *Magaúbo* Point, the tract of country being called *Léa*. As mentioned above (chap. iii., sec. 6), they had to be on the watch for the *Magóri* people, and while working the sago had to set scouts *(Paíwa)*.

The natives distinguish three kinds of sago palms—*Tsíni*, a not very large tree, with many thorns on the bark; *Rábia*, a big tree, without thorns on the bark; and *Na'óta*, a tree of moderate size, also without thorns. The general name for sago is, in Mailu, *Odé'i;* in Motu, *Rábia*.

The process of making the sago is as follows:—After the tree has been felled and opened, the pith is pounded, washed, and shaped into more or less large cakes, or put into vessels.

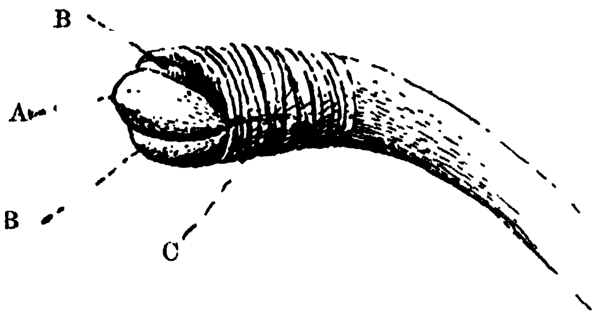


FIG. 25. *Ota*, SAGO IMPLEMENT.

A—Stone blade. B, B—Wooden socket in which the blade rests; the upper portion is loose and the lower forms part of the handle. C.—Lawyer-cane lashing, which keeps the two sockets together.

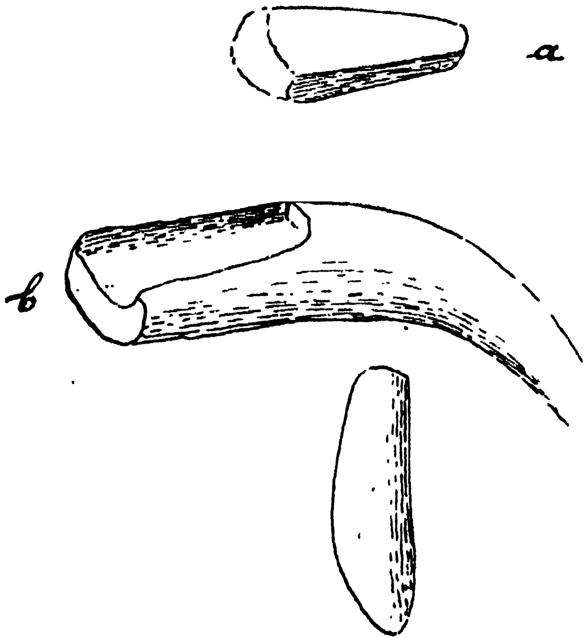


FIG. 26. SHOWING THE *Ota* TAKEN TO PIECES, AFTER THE LAWYER-CANE LASHING HAS BEEN REMOVED.

a, Upper, separable portion of socket; *b*, lower portion (made in the body of the handle); *c*, the blade, seen in profile. This is wrapped in a piece of coconut palm spathe *(Núnu)* before being fixed in the socket and lashed with cane.

In Mailu the implement used for pounding the sago (called *Ota)* consists of a small stone blade, fixed by lawyer cane into a bent handle (see figs. 25 and 26). After the pith has been pounded with this implement, it is washed in a trough formed by the hollowed-out palm trunk; then the women squeeze the water from the pulp and put the dry material into dishes, from which it is removed to be wrapped in broad leaves from trees growing in the swamps, so forming large, cylindrical, sausage-shaped bundles.

The Coconut and Betelnut.—The coconut and betelnut palms were not planted in the gardens, but near the village. It is characteristic that the natives who, for reasons of a taboo or of a fast, will let hundreds of coconuts waste without making the slightest attempt to rescue them, and even without showing very much concern, are extremely economical when planting them. They never put the whole, intact nut into the soil, but use for planting nuts which have begun to sprout, and which have been treated in the following way:—They first remove the nut from the husk, so as to leave the upper part of this, with the attached sprout, in an intact condition. The nut is, with a great sense of economy, eaten, and the husk, with its sprout, planted, the result being that the plant grows much more slowly, bears fruit a few years later, and probably never becomes as robust a tree as if the whole nut were planted, for, under the native method, the young plant, in its early stages, is deprived of its natural nourishment. No work or care is subsequently devoted to the growing coconut trees.

The coconut palm is a plant of extreme economic value to the natives. The Rev. H. Newton, in the book so often quoted in this article, describes all its different uses among the natives on the north-eastern coast of New Guinea.(49) Exactly the same uses are made of the tree and its products among the Mailu, and I will briefly summarise Mr. Newton's list, adding only the specifically Mailu details. The leaves of the palm are used for plaiting mats *(Tsináu)*. A leaf is split in the middle and the two halves are plaited together, the split mid-rib forming a frame. Such mats are used as large trays, or as doormats and screens. The women's petticoats are made of palm leaves (see chap. iii., sec. 1), and there is a form of basket made of the same material (see sec. 7 of this chapter). Again, native brooms are made of the young leaves, and the dry leaf is used as a torch when fishing at night and collecting *frutti di mare*.

The spathe, or leaf sheath, which is astonishingly like an artificial fabric, is used for many purposes, such as wrappings for hafted stone blades and for making the large portfolios in which dancing feathers are kept, and it also has its use in making the sails of toy canoes.

---

(49) *Op. cit.*, pp. 173 to 182.

The coconut, in its green, unripe condition, affords an extremely pleasant drink. In its ripe state it is used in the form of a coconut cream (see chap. iii., sec. 1), and it is eaten raw. The hard shell of the ripe nut is used for waterbottles and spoons (chap. iii., sec. 1).

The operation of removing the thick outer husk preparatory to piercing the shell in order to obtain the kernel is by no means easy. To do this the native holds the nut between his feet and uses the long, heavy stick, sharpened at the end, called *Gebátsa* (see above), with which the husk is chopped off. The husk, which is used as fuel, consists of a thick layer of fibre, covered with a polished skin. When burnt it yields an acrid smoke, which is used at the wet season for keeping off mosquitoes. It is used also for such cleaning and scrubbing as the natives require, and it affords the best painting charcoal. Mixed with salt or fresh water it contributes the black paint of mourning.

Use made of some Jungle Plants.—Besides the cultivated plants, the natives utilise the wild jungle plants for many purposes. I am not able to give anything like a complete list of the forest plants which are used as food or for technical purposes, but a few examples may, however, be given by way of illustration.

The high timber was used for dug-outs, which were the most important structures in the construction of the large and small canoes. Formerly a much softer timber (Mailu name, *Móda*) was used for this purpose, as only stone tools were then available, but since they have possessed iron axes they make use of different kinds of harder timber. The same holds good with reference to the house-building material. The bush furnishes the native with an extremely strong and flexible lashing in the form of lawyer cane *(Oro)*, which is used either simply stripped of its thorns or, when finer lashings are required, it is split.

Material for ropes *(Váru)* and string *(Tákoi)* is furnished by bush plants, and it is to be noted that the native always uses the name of the original plant to denote the finished article. Thus *Váru* and *Tákoi* are names of plants, which are, as stated, used also to denote the rope and string made from them respectively.

2. HUNTING.

As mentioned above, hunting was carried on both by the mainland *Mági* and by the Mailu islanders, but there was not much done on the island itself. A few wallabies, which lived on the grassy slopes of the hills, were hunted from time to time, and at the end of the dry season, when the grass was burned, there was a bigger hunt; but there was not enough game to make it a serious business. The hunting grounds of the islanders were at Mogúbo Point, on the mainland, opposite their island, but they were not very good hunters; they did not use the big nets used for catching boar and wallaby, and they were thus deprived of the most efficient means of securing the game. The different clans of Mailu village are said to have had, even in the olden days, their different hunting grounds.

Thus the *Bodéabo* used to hunt in a district called *Bódatúmu*, the *Urumóga* in *Gebédi*, the *Maradúbu* at and near Mogúbo Point, the *Morá'u* on *Magarída* and the *Oraído* on *Irúna.* This statement does not mean, however, that the clan would hunt by itself, with the exclusion of the others from the sport and economic advantages; as far as I was able to ascertain it means only that individual clans used to take the initiative and invite the others to partake in the hunt on the clan's grounds.

Hunting was much more important for the mainland *Mági*, who could not depend upon fishing, and these used to hunt with the large nets. There was, of course, individual action as well in spearing the wallaby; but the most important method was a collective hunt with nets and drivers. There was only one name used for hunting, or, rather, two words used indiscriminately—*Laíva* and *Apána.* Hunting connected with grass burning was carried on, but not on a very large scale, owing to the restricted extent of grassland in the Mailu district.

The hunting of the larger game was done with nets, of which there were two kinds. The pig nets *(Lóva)* were made of thin, but strong, rope *(Váru)*, with very large meshes, so that when a pig ran into them it got its head entangled in them. The wallaby nets *(Eu)* were made of much thinner cord, and had fairly small meshes, just large enough to allow the wallaby to push its head through.

During the hunt the nets were set up by means of sticks attached to both ends, and there was usually a supporting stick in the middle. In order to make them more resistant, strings, passing from the tops of the end supports, were tied to a log or stone. The pig nets were set so that they joined each other, end to end, in a curved line, thus presenting a continuous barrier. The men, armed with spears and with the hand boar trap *(Kóna)*, stood on the inside of the curve, close to the nets, and the outer ends of the curve were closed by a line of men, who by shouting and making a noise drove the pigs on to the line of nets. Charging blindly, they usually did not see them, and ran right into the nets, which were set up just firmly enough not to fall down when first struck, and on the struggle of the pig to release itself the net collapsed and entangled the animal, which was immediately speared by the men standing near by. Should the pig for some reason turn upon a man, the above-mentioned trap, *Kóna*, was used. This consisted of a pear-shaped frame of strong cane, to which was attached a loose netting with very large meshes, made of thin, strong rope. The *Kóna* was held by the man against the charging boar, which ran its muzzle and head right into its meshes. The man was able to wrestle with the animal for some time, but others, coming soon to his rescue, speared the pig.

The wallaby hunt is conducted in the same way as the pig hunt, with the exception that the nets are not joined up to each other, but a space of about one net's length being left between every two. In these spaces stand the hunters (see pl. xxxix., fig. 2 and diagram on next page). The reason for this arrangement is that there is no danger of the wallabies charging through the gaps, as they are too much afraid of the men, whom a boar would not heed; moreover, the leaving of spaces between the nets allows the line to extend over a longer distance.

If such a hunt takes place on grassland, instead of in the jungle, the grass is burned along a curve, which with the line of nets forms a closed circuit.

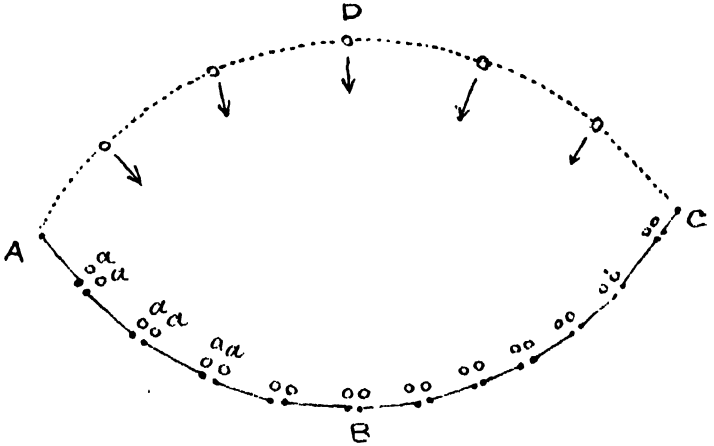


Diagram of a Pig Hunt.

A, B, C. Line of nets.

A, D, C. Line of drivers.

a a. Men with spears and *Kónas* waiting for the pigs.

The season for hunting with fire was October and November (*Lióro*), before the monsoon brought rain, when the grass was consequently dry. Hunting with drivers was mainly done in *Lióro* and in *Avára*—that is, between the fishing and the gardening seasons.

The nets, when stretched, are each about 15 m. long and just over 1 m. high.

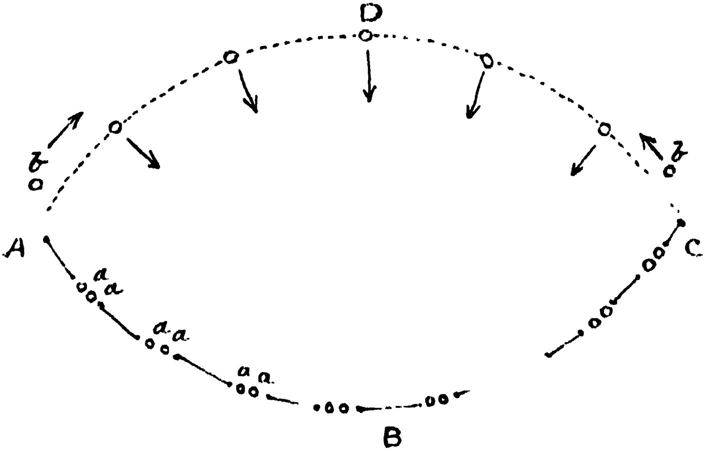


DIAGRAM OF A WALLABY HUNT.

A, B, C. Line of nets.

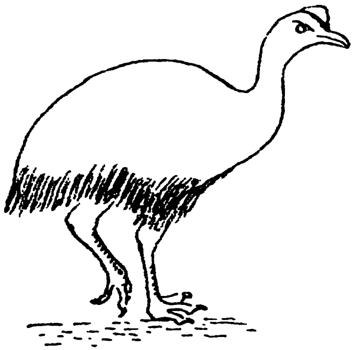
A, D, C. Line of drivers or of fire.

b, *b*. Position of two men with firesticks who set the grass on fire in the direction of the arrows pointing from them.

a a. Men waiting at the nets.

Cassowaries were caught in traps made in the following way:—A long pole of the *Tsuitsa* tree was cleft at one end, and the cleft forced open by a thin piece of wood (*Odáva*) thrust into it (see accompanying diagram). Above the angle where the two jaws of the cleft diverged a young cassowary was tied. The mother bird, on seeing it, approaches and, pushing out the *Odáva*, is caught by the neck in the cleft. When used the pole is held so that the arms of the cleft are in the horizontal plane and at the height of the adult bird's neck.

Cockatoos were caught by finding the hole in a tree where the birds were nesting, and by tying in front of this a small framed net (*Odi*), which is also used for hand fishing. The net was provided with a contrivance by means of which it could be slipped off the frame and closed. A man then goes round the tree and strikes it with a stick, and the bird, thus



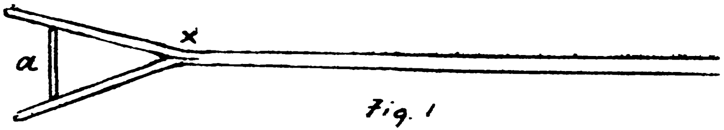


Fig. 1

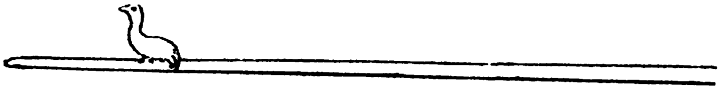


Fig. 2.

Diagram showing Method of Catching Cassowaries.

Fig. 1. Plan of cleft pole with the *Odáva* in position. × marks the place where the young bird is attached.

Fig. 2. Cleft pole as held when used with the jaws of the cleft in the horizontal plane. The young bird is tied on at the angle of the cleft and the mother bird is approaching.

frightened, flies out into the net, which is immediately closed by another man. The white cockatoo *(Oráma)*, the red one *(Uráva)*, the small brown *(Ero)*, and the large brown *(Bina)*, as well as the black *(Bebému)*, were valued for feather ornaments.

The bird of paradise *(Tsiáke)* was caught in a snare *(Onígo)* set on a branch of a native *Ficus (Báni)*, on the fruits of which the birds feed. When the bird walks on this branch a man standing underneath pulls the snare and catches the bird.

The cuscus *(Oúra)* is caught by cutting down the tree in which it hides.

A word may be said in this place about the breeding of pigs. As a rule, the sows only were reared and kept in the village, and they usually lived within the village enclosure. But they were allowed outside as well, where they mated with the wild boars of the jungle. This is alleged as one of the reasons why the pigs on the mainland in Mailu district were not nearly as good as those of *Aróma*, where the Mailu islanders, who did not breed their own animals, used to provide themselves with the material for their feasts. The *Aróma* pigs had much better food, as the large coconut plantations there were used for fattening them. Both sows and boars were kept in the village, thus precluding the admixture of the inferior, wild breed of the jungle. The *Aróma* people are also said to wash their pigs with coconut cream and bathe them, and they put some leaves as medicine into their food, but they do not utter any spells nor use any charms.

3. FISHING.

In Mailu Island fishing is the most important economic activity, this industry having here reached a much more varied development than amongst the mainland *Mági*, and all that is said in this section applies to Mailu Island. The mainland *Mági*, who, in order to fish, had to venture down to the beach from their stockaded villages, and who had to be always on the alert, had much fewer methods of fishing in the past, although nowadays, when they live on the beach, they have probably adopted all, or nearly all, of the Mailu methods.

To the Mailu islanders the sea and its inhabitants are objects of the greatest interest. Several times I observed a great uproar in the village, shouts ringing from one end to the other, and people hurrying to the beach in the greatest excitement, the reason being that dugongs were seen in the shallow water near the reef. Often when I sailed in native canoes, or in launches, or paddled in a dinghy, I saw the excited and keen interest with which the boys watched fish moving in the sea. One evening, when I climbed to the top of the Mailu hill with several natives, they were exclusively interested in watching the fish which they could see with their keen eyesight in the water, some 200 m. below where we stood. When the women prepare for going out at night with torches, for the collecting of fish or shellfish, the excitement is evident during the whole afternoon and evening.(50)

Except the collection of *frutti di mare*, all the serious fishing is done by men, who often go out alone, or in twos or threes, with their fish spears *(Udi)*. This consists of a long shaft and of a crown-shaped set of slightly barbed prongs, forming a cone, which has its apex where the crown touches the shaft, and spreading out towards the points. They spear the fish, either from canoes or standing on the reef. This form of fishing goes on all the year round, and it is sometimes done by night with a flare. The real fishing season is *Tsilówo*, at the change of the north-west into the south-east season, and during the first months of the south-east trade wind. At that time much of the fishing is done with nets.

There are several kinds of nets, adapted to the size of the fish and to the method of fishing. The smaller kinds are called *Orá'i* and the larger *Gaúma*. The former are made of string *(Tákoi)*, which is made from thin fibres, twisted by the palm on the thigh. The *Gaúma* are made of the native rope *(W'áro)*, which is prepared from the inner bark of the tree of that name. This is twisted into a very rough cord, which is wound round itself so as to form a very strong rope of double the original thickness. Thick kinds of such ropes are used in navigation, and a fairly thin sort for net making.

The different sorts of small nets are named after the kind of fish which is most frequently caught with them. Thus the net having the smallest mesh and width is called *Távita orá'i*, after the small fish *Távita*. The floats *(Uto)* of this net are cut out of a very light kind of wood; they are not carved nor decorated, and have the shape of bovril bottles. The sinkers *(Boi'á'u)* are made of conical or spiral shells, which have been worn down to small, flat discs by the action of the waves. The length of the nets, which consist of separable sections, is of course variable, and sometimes several of them are joined together. The height of the *Távita orá'i*, when set in the water, is about 40 cm. Slightly larger is the *Lorowátu orá'i*, both being named after the two kinds of fish most frequently caught with them. The floats of the last-named net are identical in shape and material with those just mentioned, and their sinkers are made of a species of *Venus* shell, called *Gíri*. Slightly larger again is the *Gébi orá'i*, and still larger the *Du'i orá'i*.

---

(50) The great excitement shown by the women in Bartle Bay whilst their fishing is in progress is described by the Rev. H. Newton *(op. cit.*, pp. 115, 116).

The large *Gaúma* net stands in quite a different position in the cummunity of nets, for there is some magic connected with it (comp. chap. v., sec. 2). The *Orá'i* nets are private property, and they were kept in houses. The *Gaúma*, on the other hand, is the property of the subclan, and it was in olden days kept in the *Dúbu*. The *Gaúmas* have all their own names, which are here given:—

Subclan.	*Gaúma* name.
Wáratsadúbu	*Lágo'amúa*
Aritsadúbu	*Goitsie'amúa*
Bódeadúbu	*Batsu'amúa*
Gáradúbu	*Goitsie'amúa*
Gónidúbu	*Bánamúa*
Díadúbu	*Móguamúa*
Boíladúbu	*Bátsu'amúa*
Bára'idúbu	*Duámu'amúa*
Bánagadúbu	*Oi'amúa*
Máradúbu	*Agiu'amúa*
Mótodúbu	*Tówadá'e*
Móraudúbu	*Rúru'amúa*
Morá'u	*Ogobada'amúa*

The *Gaúma*, as said above, are made of thin *Wáru* ropes. They had large wooden floats and heavy sinkers, made of fragments of large *Conus* shell *(A'i'a)*, and when set in water the net might be from 2 to 3 m. high. There were two classes of this kind of net. The *Umegaúma*, used for catching the big *Ume* and other large fish, and the dugong net, *Opi gaúma*. There was only one of the latter in the Mailu village, but there were several of them in *Domára*, at the western end of the Mailu district. These nets are held in most regard, and there are customs, taboos, and magic associated with them (see below). Each such net has got also its own individual name, but I failed to record that of the one in Mailu.

Various kinds of fishing, both by day and night, are done with nets, the smaller being used exclusively in shallow water.

1. DAY FISHING.

1. *Táea.*—This is done quite close to the shore, the men, of course, wading. A large heap of stones *(c)* is previously piled up in the sea, so that a number of small fish may find shelter and congregate. One man keeps one end of the net

fixed on shore, and two, or more, others hold it at different points, while several men try to drive the fish into the net. By shouting and splashing the water they frighten the fish out of the pile of stones, and then, closing upon the net, they drive the fish into it, swing its free end towards the shore, and the net, having been thus closed, the men take out the fish. For this form of fishing the *Lorowátu* and *Gébi* nets are used.

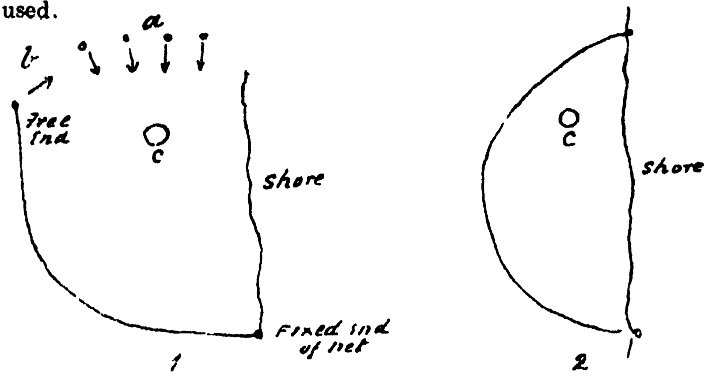


DIAGRAM OF *Tápa* FISHING.

a. Arrows indicating the direction in which the fish are driven.

b. Direction in which the free end of the net is moved.

c. Heap of stones.

In 2 the net is closed against the shore.

2. *Gébi* fishing, in which the net called *Gébi orá'i* is used.—This method is similar to that just described, in so far that the fishing is done in shallow water and small fish are caught.

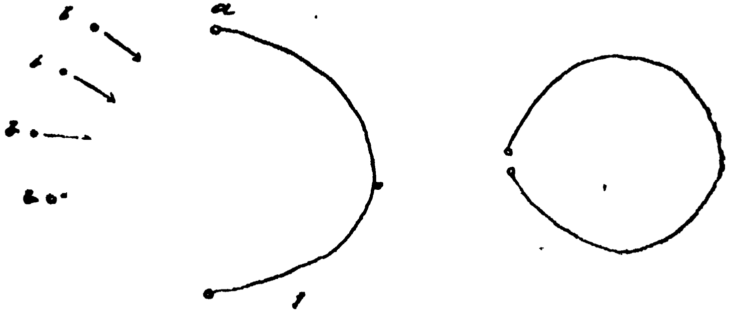


DIAGRAM OF *Gébi* FISHING.

a, *a*, *a*. Men holding net.

b, *b*, *b*. Men driving the fish.

In 2 the net is closed.

The difference is that one end of the net does not touch the shore. Two or three men hold it away from the land, while several others drive the fish into it by beating the water with sticks, screaming, etc. Then the net is closed by bringing the ends together, and the fish are taken out by hand.

3. *Dú'i.*—This kind of fishing is done further out in the sea. Some four or five men paddle outside the reef, and when fish are seen two men get into the water and swim, holding the two ends of the *Dú'i* net; others, also swimming, make a noise, and so drive the fish into the net, and when they come in contact with it, it is rapidly raised and both net and fish are lifted out of the water together, without previous closing of the latter.

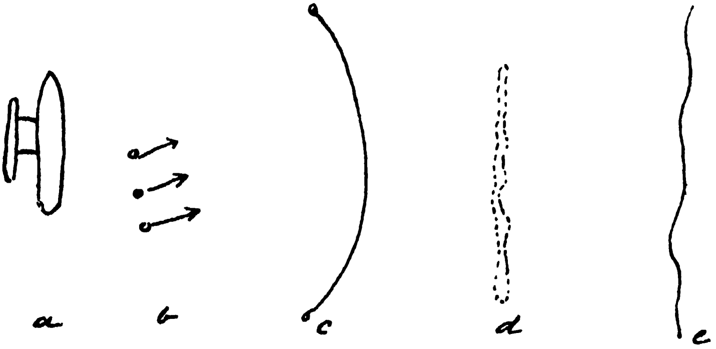


Diagram of *Dú'i* Fishing.

a, Canoe. *b*. Drivers swimming. *c*. Net. *d*. Reef. *e*. Shore.

4. In the *Távita* form of fishing the net is also not closed, but is lifted as in the method just described. The nets *(Távita orá'i)* employed for it have very small meshes, and are used in shallow water to catch very small fish.

5. The deep-sea fishing for big fish *(Dóa)*, in which the *Gaúma* net is used, is always conducted in the daytime and from a large canoe *(Oro'u)*. These are sailed some distance outside the barrier reef which surrounds the island, and preferably towards an outlying reef. The men scout for the fish, one of them usually climbing the mast of the canoe to look out. When they are seen, the net is cast and is held by four men, or so, as they swim. A few other men, also swimming, drive the fish towards the net, which is closed upon them by bringing the two ends together. One end is then moved along the net, as shown in the diagram, so as to circumscribe the space in which the fish are confined, and these are then taken out.

Sometimes, when fishing is done near the reef, the net men wade instead of swimming.

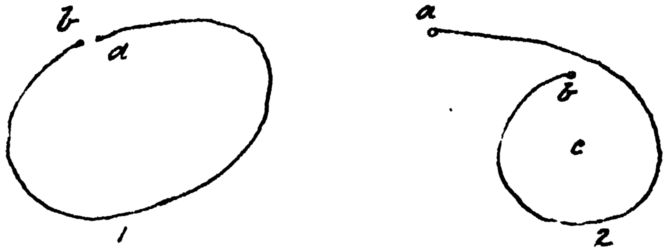


DIAGRAM OF *Doa* FISHING.

1. Net closed.

2. The end *b* is then moved along the length of the net so that space *c*, in which the fish are, becomes gradually reduced in size.

2. NIGHT FISHING.

1. *Bónu.*—This is the form of nocturnal fishing which corresponds to the *Táua*, day fishing. Stones are piled together in heaps near the shore, with the object of inducing small fish to seek shelter therein. *Lorowátu* and *Gébi* nets, sometimes several joined together, are attached by one end to the shore, and the rest of the net is moved by one or more men. Several men, by holding torches of dry leaves, beating the water with sticks, and shouting, drive the fish into the net, which is closed against the shore and the fish taken out by hand (see diagram of *Táua* fishing).

2. *Aúaurúi.*—In this method the spear is used. A few men paddle out in a small canoe *(Vao'na)*, in the bow of which one of them stands, holding a torch in one hand and a spear in the other. The fish, when they approach the light, are speared. The fish commonly captured in this way is the *Aúau* (in Motu, *Korabáda)*.

A method of capturing fish which is still to be mentioned is that by which they are poisoned, or, rather, stupefied, by means of a plant which is called *Tú'a*. For this the net is also used, as well as a heap of stones, to attract the fish. The leaves of the *Tú'a*, which have been previously pressed between two stones, are bound in a big bundle, which is attached to the end of a long stick. The bundle is thrust into the heap of stones, and the men beat the water and shout. The fish, both frightened and stupefied, swim right into the net and are easily caught.

The dugong *(Halicore dugong)* fishing *(Wálowúlo)* is always carried out in shallow water, either inside the barrier reef or near it on the outside. When the animal is seen, the men, to the number of about ten, enter the water and spread the dugong net. Other men drive the animal against the net, and when it is entangled its head is held down in the water until it is suffocated.

On the return of the fishing party to the village the men sing the following song, beating the time with the large floats on the dugong net:—

Pikana au ena vavíne
(name) man his wife
Ila gorila kaikai ai kaikai au
food cook eat
Ena vavíne ila gorila, etc.

This song was said to be in the *Aróma* language.

4. TRANSPORT AND TRADING.

Introductory Remarks.—Trading by land did not play a great part in the economics of the Mailu district, for on the Mailu mainland these people produced practically the same articles in all their villages, and there was no occasion for exchange between them. Moreover, communication was not easy in the direction parallel to the Main Range, as any village group would have to deal with hostile neighbours. Travelling along the beach in a direction parallel to the longitudinal axis of the continent, which is now regarded as the easiest way of communication, was also impossible for lack of personal security. There was, it seems, some trading done in the transverse direction between the mainland *Mági* and their inland neighbours, but I was unable to discover that any really important article was traded that way, and it seems also clear that there was no trading route across the Main Range. I was informed by Mr. Armit (Resident Magistrate at *Abá'u)* and by Mr. Higginson (Resident Magistrate at Samarai), who know the Mailu hinterland well, that there is a long gap between the *Udáma* (natives of the Mailu hinterland) and the tribes living on the other side of the Main Range.

Thus trading by land and transport on land do not play any part in the affairs of the district.

The Toulon islanders are the great trading community of this part of the country, and they carry out their business by sea. They possess well-proportioned sea-going canoes, provided with the well-known crab-claw sail, which form one of the most picturesque features on the south coast of Papua. I am told by sailing experts that the Mailu *Oró'us* (called by the Motu *Lugúmi)* are the best sea-going canoes in the territory. They are quite as fast and manageable as the Woodlark canoe *(Vága* or *Amuiúwa)*, and as they are able to sail close to the wind trading expeditions in either direction are possible.

From the fact that they are built with two dug-outs instead of one (as is the case with the *Vága),* they are able to stand heavy weather better than the latter, and they are also able to carry more cargo.

Description of Native Canoes and of Native Sailing (comp. pls. xxxv., xxxvi., and xxxvii., also pl. xxviii., fig. 1).—The hull of the *Oró'u* consists of two dug-outs joined together by a set of poles, on which rests a platform. There is no differentiation between bow and stern, as it is sailed either way; but the hull is not bilaterally symmetrical, because one of the dug-outs is larger than the other, and it is on the larger one that the mast is fixed; there is also a small lateral platform on the same side. The dug-out on the mast side is called *Tsébi;* the smaller one is called *Lárima,* a name also given to the floats of the small outrigger canoes. The dug-outs are at the present time made of the wood of the *Móda,* which is one of the tall, tropical trees with buttressed trunks. In olden days, before the white man's implements were in use, the *Ilimo* tree, the wood of which is much softer than that of the *Móda,* was used for this purpose, as the latter was too hard for their stone tools. The trees were secured in olden days on the *Baírebo* River, which is on the mainland, opposite Mailu, or in *Léa,* the district where they used to make sago. Expeditions in search of this timber consisted of a number of men, as it was necessary to be prepared for defence. The tree was felled, dragged to the water, and brought to Mailu, where in olden days they were hollowed out with stone tomahawks, but now the work is done exclusively with steel implements. The log, after excavation, was provided with a fairly high gunwale, made of two long planks, placed one on each side, and two short ones at the ends. The gunwale *(Oró'u tsípa)* is lashed to the dug-out log by means of a fairly thin, but

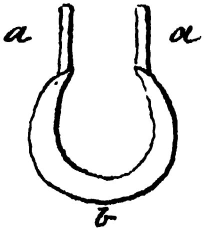


FIG. 27.

CANOE MAKING.

Fig. 27. Transverse section of one of the canoes, which forms the basis of the double canoe *(Oró'u).* It shows the planks *(a, a)* forming the gunwale, and the dug-out log *(b) forming* the bottom of the canoe.

strong, vine (*Tsinárc*). Holes are made near the upper border of the dug-out and in the middle of the gunwale plank, and the vine lashing is passed several times through those two sets of holes and over the top of the gunwale. These lashing strands are, nautically speaking, "served"—that is to say, the vine is wound round them closely. Some ten or twelve lashings are made on each side.

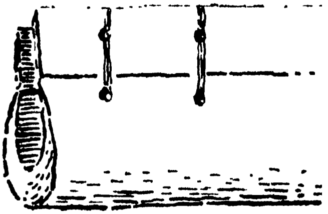


FIG. 28.

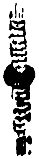


FIG. 29.

Fig. 28. Shows the manner in which the gunwale plank (*a*) is lashed to the dug-out (*b*). The longitudinal strands of vine are shown passing through the holes.

Fig. 29. Shows the way in which the vine is wound round its longitudinal strands.

This combined structure—dug-out and gunwale—is strengthened by a set of six ribs (*A'e*), which are placed in opposite pairs in the middle and at both ends of the canoe. The ribs are made of branches of the *Váru* tree, which are naturally bent to less than a right angle. They are lashed to the canoe by the *Tsináru* vine in three places, one end being fastened to the upper edge of the gunwale, the knee to the top edge of the dug-out log on one side, and the other end to the top of the dug-out on the opposite side (see fig. 30).

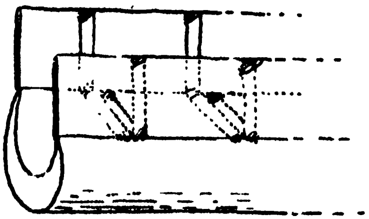


FIG. 30

TWO PAIRS OF RIBS OF A CANOE.

In reality the pairs are much further apart, as there are only three pairs in the whole canoe.

The gap between the gunwale and dug-out, as well as any holes, are caulked with the soft bark of a tree *(Kaitsio)*.

The perpendicular planks *(Birítsa)*, which close the canoe at both ends, are carved at the top with a more or less uniform design, but even the best carving done in Mailu is of poor quality, as compared with that of the Massim (see pl. xxxv., fig. 1). The dug-out ends in a pointed horizontal nose *(Oró'uáre)*, which projects for some two or three feet under the carved part of the *Birítsa*, and is sometimes ornamented (see pl. xxxv., fig. 1).

The carving of the *Birítsa*, which are made of *Móda* wood, seems suggestive of the human face, but the natives do not endorse this interpretation. These are the essential parts of the two canoes, which from the hull of the compound canoe, the *Oró'u*.

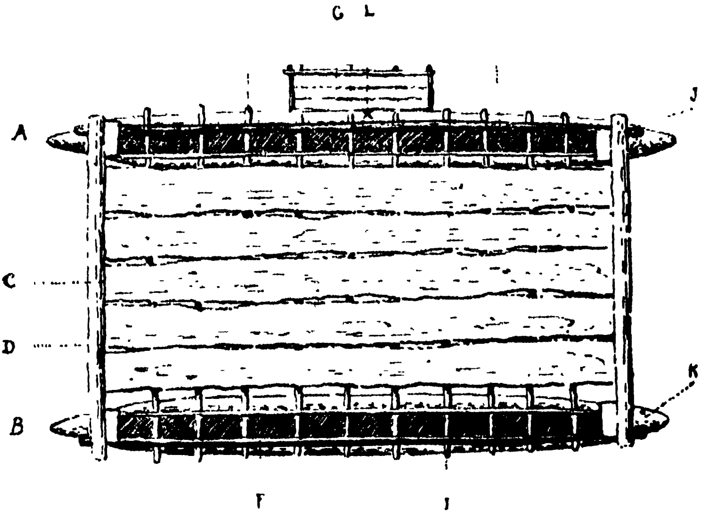


Fig. 31. Plan of an *Oró'u*.

A. *Tsébi* canoe (mast side). This dug-out is the larger of the two.

B. *Lárima* canoe; it is as a rule the slighter one.

C. Platform *(Vavá'o)*.

D. *Abába*.

E, F. *O'aó'a*.

G. *Tsébi wára* (in this diagram the *Tsébi wára* platform is made exceptionally short; usually it is much longer).

H, I. *Iádo*.

J. *Birítsa*.

K. *Oró'uare*.

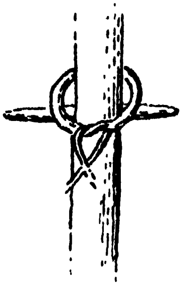
L. Place for mast.

The two canoes are joined together by about ten horizontal poles *(Iádo)*, passing through holes made in the four gunwale planks, and strongly lashed to them with *Tsináre* vine. They project beyond the gunwales, so that they are easily seen on both sides of the *Oró'u*, and their ends are usually ornamented with streamers of coconut leaf spathe (see pl. xxxv., figs. 1 and 2). The platform *(Vavá'o)* of boards rests on the *Iádos*, to which it is solidly lashed, and it covers only the space between the dug-outs—that is to say, it does not encroach upon the latter.

The whole structure is still further strengthened by a framework of four strong poles. The two longitudinal ones *(O'aó'a)* run along the top of the outer gunwales of both canoes. The transverse poles *(Abába)* are broad, flat, and board-shaped, and run outside the *Birítsas*.

On the outer side of the *Tsébi* dug-out a small lateral platform *(Tsébiwára)* is constructed, projecting above the water (indicated on pl. xxviii., fig. 1). Close to this, and sometimes partially upon it, the mast *(Véa)* is erected on the *Tsébi* dug-out. A short log *(Dábi)* is lashed to two *Iádos*, and a young *Madáve* tree, about 8-10 metres high, is lashed to the *Dábi* and to the two *Iádos*. The ropes supporting the mast consist of a fourfold strand of untwisted rattan or lawyer cane (in Mailu, *Nídi;* in Motu, *Oro)*.

This passes from one end of the *Lárima* dug-out to the top of the mast, where it is looped and rests on a piece of wood stuck through the mast, and from here it descends again to the other end of the *Lárima*. At both ends of the *Lárima*



CANOE DETAILS.

Fig. 32. Showing the manner in which the stays are fastened to the mast, near its top.

the strands, which are ornamented with streamers of coconut spathe *(Yúnu)* are fastened by strong, looped knots. Similar streamers are sometimes attached to the top of the mast, and in some cases the latter is ornamented with cassowary feathers.

Each canoe has one mast and one sail *(Déudéu).* The sail is constructed of matting *(Eba)* made from a freshwater reed. Narrow strips of this, about 40 cm. broad and 6-10 m. long, are stitched together with the bark fibre of the *Váru* tree—the same bark as that from which the ropes are made—and needles made of the wood of a palm *(Góro).* The characteristic crab-claw form of the sail is conditioned by the convex form of both spars and by the curved line of the upper rim of the sail.

The boom *(Itsá'u)* and the yard, or gaff *(Atana'itsáu),* are composed of two or more poles of *Kóke* wood, which is very tough and elastic lashed together with thin *Váru* ropes. The ropes (in Mailu, *Déudéu ora'ora)* by which the sail is hoisted pass through a hole in the top of the mast and are made fast to an *Iádo* at the base of the mast. Before hoisting the sail the rope is moistened in order to make it run easily through the mast hole. The sail is attached to the boom and gaff by lashings placed about every 50 cm. The gaff, when hoisted, comes to the top of the mast at about two-thirds of its (the gaff's) length. Both boom and gaff are attached to the bottom of the mast. The sheets (ropes holding the boom) are tied to the boom at about its middle, and they pass to the last rear *Iádo* of the *Lárima.* In moderately rough weather they scandalize *(Bádi póa)* the sail by folding the bottom apex of the triangular matting so that the top of the sail comes much lower. In very rough weather they lower the sail, cast

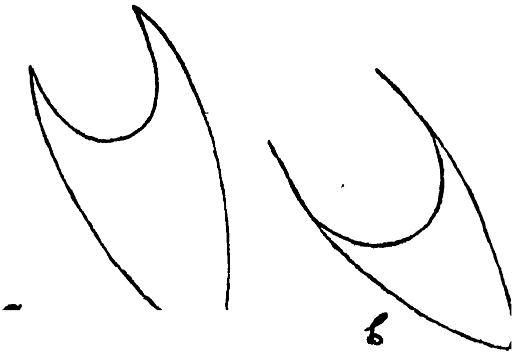


Fig. 33. *a*, Full sail; *b*, scandalized sail.

it off from the boom and gaff; then they highstop the task of the sail, putting a short spar across its belly to spread it out.

The rudder *(Maréva)*, in most cases made out of an old leaky dug-out, is a broad board, about 4 to 4·50 m. long, tapering in width towards one end (see fig. 34).

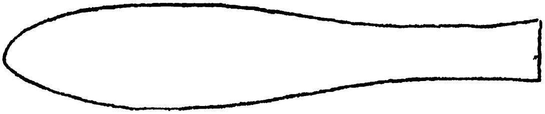


FIG. 34. MAILU RUDDER.
Typical form of Mailu rudder *(Maréva)*.

The rudder is lashed to the third *Iádo* from the stern of the *Tsébi* with a piece of *Váru* rope, and it hangs down by the side of this canoe and parallel to its side, somewhat after the fashion of the steering oar of a Viking's galley. About 1 to 1·20 m. from the top of the rudder two holes are made in it, one under the other, and through these two loops of rope, called *Maréva dó'i*, are passed. A stick *(Maréva dóra)*, about 2·50 m. long, passes through the two loops and serves the purpose of a tiller in steering *(Oma)*. This can be done by one man if the weather is not too rough. The steerer stands with one foot on the *Tsébi* and with the other placed on the rudder half a metre below the lashing, in order to keep it submerged, as it naturally tends to rise when sailing. By the movement of the tiller he can rotate the plane of the rudder and so direct the course of the boat just as is done with an ordinary rudder, with this difference, that in the case of the Papuan boat the rudder, from its position not far from "'midships," serves to some extent as a leeboard, and so checks leeway.

As mentioned above, these boats are able to sail fairly close to the wind, making but little leeway. They cannot go about ship in the ordinary way, as the larger *Tsébi* dug-out must always be to leeward; in fact, the smaller and lighter *Lárima* acts more or less in the same way as the float in a catamaran, and if too much weight is put on this the craft capsizes.

In order, therefore, to go about ship, called *Dóedóe*, the natives proceed as follows:—They unship the rudder, lashing it at the other end of the *Tsébi*, and reverse the sail, the bows of the boat then becoming the stern, and they go off at right angles to their former course.

If there is no wind, or only a very little, they sometimes row, the oars being rather large and quite different to the paddles used for the small boats. The oar is fastened to an *Iádo*, and they pull in a sitting position.

Ownership of Canoes.—There are usually two owners to a canoe, called *Oró'u gubina égi*, and *Lárima gubína égi*,
canoe boss man float boss man
meaning the "man controlling the canoe" and the "man controlling the *Lárima.*" The first is the chief owner. Nowadays, when there are at times as many as thirty to forty *Oró'us* in Mailu (they are often traded and thus the number varies), a man and his younger brother usually own a canoe jointly. In olden days the *Oro'us* were much fewer, and, as far as my information goes, there was only one in each clan, or, if this was big enough, one in each subclan. Each clan or subclan had its own name for its *Oró'u.* Thus there were two *Oró'us* in *Loupóm*, of which *Oradoróm* was owned by the *Gobodúbu* clan and *Avareási* by the *Bo'imarú'i.* In Mailu I obtained the following names of canoes (though it is not a complete list):—

Clan or subclan.	Canoe name.
Bodé'abo	*Kóbu*
Boiladúbu	*Aru'ábu*
Banagadúbu	*Kilápu*
Maradúbu	*Lokóm*
Motsodúbu	*Vé'agú'ia*
Morá'u	*Aria'umóga*

In *Laruóra* the following were the canoe names:—

Clan or subclan.	Canoe name.
Motsodúbu	*Moqu'ánave*
Dagedúbu	*Oribegá'i*
Waratsadúbu	*Dunári*
Bo'idúbu	*Láeagá'i*
Gúbaredúbu	Had no canoe

In this state of things, when each canoe belonged to a clan or subclan, the headman of the clan or subclan was also the chief master of the canoe, and his brother or uncle would be the second owner. As a matter of fact, ownership was in this case, as in many others, rather a question of a honorific title than of exclusive usufruct. A big *Oró'u* could conveniently hold some fifteen or twenty people, and that was as many as were likely to set out on any expedition from one *Dúbu.* On the other hand, the sailing—as far as course, dates of sailing, etc., were concerned—was a matter regulated by custom, so that there was really very little scope to exercise the rights and privileges of ownership in Mailu sailing.(61)

---

(61) If a man did not possess an *Oró'u* he could borrow one *(Gánade otsáutsa).* The price for the journey from Mailu to *Aróma* is: one *Abóma* (long wooden dish), several coconuts, a couple of spears, and some food. This would be shared by the two owners.

The crew of the *Oró'u* consists, at the minimum, of six men, of whom it takes three to look after the sail in rough weather. One man can steer in fine weather, but it requires two or three when it is rough, and one of the crew is sometimes needed to use the *Ivára*—a long pole used to push the boat off the shore or off the reef in the case of traversing a narrow passage.(52)

Besides the *Oró'u*, some natives of the district use smaller double canoes, called *Gébo*. These resemble the *Oró'u*, but are only about half their size, less ornamented, and without carved *Birítsas*. They are used for short journeys only.

The *Vaóna*—a kind of catamaran, or dug-out, with float—is of the typical Papuan form. There are only a few peculiarities about the attachment of the float to the outrigger, of which, however, I have not made a record.

Very small dug-outs, used as playthings by boys, have been mentioned above (see chap. iii., sec. 4).

Trading Expeditions.—The *Oró'us* were the means of transport on water of Mailu, *Laruóro*, and *Loupóm*. As a matter of fact, however, as far as distant sailing was concerned, they appear to have been a monopoly of the Mailu islanders in the olden days.(53) *Laruóro* was a fairly recent settlement, and neither it nor *Loupóm* ever used the big canoes for distant expeditions or trading voyages. They used them in rough weather to reach their gardens on the mainland, where a small dug-out would not have been safe. They also made short coastal journeys to *Déreba*, *Bórebo*, etc., but that was all. The real trading and distant voyages of the district were done exclusively by the Mailu islanders.

It was necessary that these should be good sailors, as they were obliged to import many commodities from abroad, and even to cross from Mailu to the mainland in rough weather required a good deal of seacraft, as the channel is about five miles in width and quite unsheltered from either the south-eastern or north-western winds. On the other hand, the short distance of less than a mile from *Loupóm* to the mainland was fairly sheltered, especially in the south-eastern season.

(52) The platform of the *Oró'u* could be covered with a mat roofing, and the boat was thus made into a sort of dwelling, habitable even in rainy weather, and affording protection against the sun. The boat was used in this manner when beached on some distant visit. The house-boat figured on pl. xxviii., fig. 1, remained thus beached and inhabited for weeks in Mailu village.

(53) *Domára*, in the west, may have been an exception. The Mailu also traded their canoes to the *Aróma* natives.

The Mailu, in olden days, seem to have been self-supporting, as far as food is concerned (see sec. 1 of this chapter); but they had to procure the sago on the mainland, without which there could be no feast and no certainty of a sufficiency of vegetable food. They had also to fetch the timber for building canoes and houses, and the sago palm leaves for thatching their roofs. They had to go to the tropical jungle on the mainland for the different fibres for their string and ropes, and for the reeds for their matting and basketry. They had on their island no suitable wood for making spears and shields, nor the proper stone for clubs and stone axes. Further, they had neither wild boars on the island, nor could they rear village pigs, and a Papuan without a pig is a very incomplete human being. Thus they were, in their requirements, a community entirely dependent upon resources from outside, and they had to get the required commodities either by robbery, piracy, or trade. As a matter of fact, in olden days they used to do all these. But I do not think that piracy and robbery were ever important factors in the economic life of the Mailu community, and at present they have become absolutely harmless Philistines under the pressure of law and the influence of religion.

Their own economic activities on the mainland (sago-making and hunting) have been previously mentioned. There remains to be said a few words about their trading. By their excellent craft, good training in seamanship, and by their eminently favourable position, the Mailu islanders were exceptionally well adapted to become a great trading factor on the southern coast. They could leave their village without approaching any hostile settlement, and they had no rivals equalling them in seamanship anywhere within their sailing area. In this they seem to have been better off than the trading communities of the eastern end and the Archipelago (Milne Bay, Engineer Group, and Louisiades), which must often have met with disaster from hostile tribes on their trading expeditions.(54)

The Mailu had a clear coast from *Suá'u* Island on the east, where their crab-claw boats met the oval-shaped *Vágas* (or *Amuiúwas*, as they are called in that district) of the Massim, to *Aróma* in the west, where the native traders from the Hood Bay villages, and even the Motuans, met and carried westward their trading business.

The Mailu were traders in the true sense of the word; they not only exchanged their own products for the things they wanted, but they played the part of middlemen, obtaining some articles in the east and exchanging them in the west with a great advantage, and *vice versâ*.(55)

---

(54) Comp. C. G. Seligman, *op. cit.*, chaps. xli. and xlii.

As the trading was done seasonally, it will be best to give an account of the several expeditions conducted annually and, as a rule, with reference to the native seasons and division of the year described in chap. iii., sec. 2. As mentioned there, the season of *Avára ogóda* was spent at home, and so was *Tsilówo*, which was the fishing time. It is in the *Aurári* season (July-August) that they began the regular series of trading journeys and the expeditions preparatory for trading. From the convergence of the statements of all my native informants it appears certain that this series was usually carried out in the same order, and that in olden times it did not essentially differ from the present state of things, though the trade is now carried out more briskly than before, and, owing to the security from raids, a much larger number of natives venture to leave the village than would have been then possible.

As said, the first expedition leaves Mailu in the *Aurári* season, going westward to *Aróma*, in order to bring home a supply of betelnut, which is plentiful at that time. I could not ascertain what was the article they exchanged for the betelnut, but I believe it was chiefly pottery. On this expedition they fish for the *Conus millepunctatus* shell all along the barrier reef from Mailu to *Aróma*, and they acquire unworked shells from the *Aróma* people. In fact, the collecting of these shells is undoubtedly the most important aim of this expedition, as it makes possible the subsequent manufacture of arm-shells, which again are the main article of trade with the *Aróma*.

In the *Lióro* season (late September and October) they go to *Léa* to make sago, of which they produce much larger quantities than their own wants require. The surplus is traded to the *Aróma* people on a second expedition, buying this time small pigs and dogs. *Aróma* is the chief centre, but on the way there they trade with the other villages (*Dómaru*, *Villerúpu*, etc.).

After this second expedition to *Aróma* they sail in the *Lióro ogóda* season (November-December) eastwards to *Bónabóna* Island, the village round Mullins Harbour, and further along the coast as far as *Suá'u*. There they acquire, in the first place, arm-shells in return for the small pigs and dogs which they had obtained in *Aróma*. These arm-shells are made in the Southern Massim district and in the Archipelago, the best ones being manufactured in the Trobriand

---

(55) Comp. the description of similar communities in the Massim area, C. G. Seligman, *op. cit.*, pp. 526 to 528, and p. 536, *et seq.*

and Woodlark Islands. The Mailu make arm-shells themselves, and they seem to be as good at that industry as any others. But it pays them to trade the arm-shells down from the east to *Aróma*, owing to the difference of prices between these two districts. The Mailu know also some tricks by which the market value of a shell can be increased. The value of an arm-shell is estimated according to the position it is able to occupy on a man's arm. The higher up it will go and the easier it will retain its position on a strong man's biceps the more valuable it is, and to this end the Mailu very often grind down the shells in such a way as to allow them to be slipped further up the arm.

Besides the arm-shells, the Mailu used to acquire several other articles of the much superior Massim workmanship, particularly the exceedingly fine ebony carvings of the Northern Massim, and the fine, green polished axe blades coming from Woodlark or the d'Entrecasteaux group.

As the trading routes of the east are essentially connected with those of the Mailu, and as the general cultural influence of some of the eastern people upon these natives is unmistakable, it seems advisable in this place to say a few words about the trading lines on, and round, the eastern end of Papua, as this is cut off by a line touching Mullins Harbour on the east and passing through Cape Vogel, including also those islands of the adjoining archipelago.

Prof. Seligman has given an excellent account of the Massim trade routes, as far as they are contained within the Massim area proper.(56) He shows how the main manufacturing area (the Trobriands and Woodlark) used to be in communication with the d'Entrecasteaux group, and with the trading centres in the Archipelago, such as *Túbetúbe*, in the Engineer group.(57) Prof. Seligman also traces the lines of direct communication between *Murua* (phonetically spelt *Muiú'a)* or Woodlark Island and the Louisiades (58); but this is less important in the present connection. He also shows how the natives of Milne Bay were in constant communication with the trading communities of the Archipelago, and were thus provided with the products of the Northern Massim (Trobriands and Woodlark), as well as with those of Louisiades and the d'Entrecasteaux group. "Lastly, the hamlet groups behind the head of Milne Bay had at least occasional intercourse with the people in the neighbourhood of Mullins Harbour on the south coast, and there is reason to believe that there was formerly a trade route (never perhaps of great importance) from Mullins Harbour to the head of Milne Bay, and thence to the north coast in the neighbourhood of Taupota." (59) And again: "Mailu canoes journey eastwards, trading with a number of islands on the Massim." (60)

---

(56) *Op. cit.*, chap. xl.

(57) Comp. *op. cit.*, pp. 529, 530, and pp. 537 to 539.

(58) *Ibid.*, p. 530.

The data collected by Prof. Seligman enable us to connect the Mailu trading routes with those of the Massim. The last quoted explicit statements bear directly upon our problems, and, in fact, they indicate the two main approaches of the Western Papuo-Melanesian world to the Massim culture area—Mullins Harbour and the coast between *Bónabóna* Island (entrance to Mullins Harbour) and *Suá'u*. As far as I know, the Mailu canoes seldom go beyond *Suá'u* even now, and they hardly ever went any further in the olden days, so that I do not think it can be said that they used to trade with a number of the Massim Islands. Had they done so, it would have been undoubtedly the most important channel through which such articles as greenstone blades, ebony carvings, fine basketry, and other products of the Northern Massim and of the d'Entrecasteaux group would have found their way into the Mailu and other western districts. As matters stood, it seems that a much greater amount of articles was traded *viâ* Mullins Harbour. There seems to have been at least two, or even more, overland routes to Mullins Harbour from the Massim area. One is mentioned by Prof. Seligman in the statement just quoted. It leads from the eastern shore of the deep inlet to the head of Milne Bay, through an almost completely flat country. This route passes exclusively through Massim territory, and does not traverse any of the other tribes. But although this was a very accessible way, the journey from Mullins Harbour to Mailu Bay being said to be easy, it was quite an unimportant route, as is correctly stated by Prof. Seligman. There was, however, another trading route, starting from the northern and north-western shores of Mullins Inlet, as well as from the villages on the eastern shore of Orangerie Bay, and going practically straight, northwards, to the villages of Bartle Bay. These villages must have carried on an extensive trade with the d'Entrecasteaux group, though on this head I did not obtain much information. That concerning the overland trading route seems fairly reliable, as it was computed from data obtained independently at Mailu, in the village of *Dahúni*, Mullins Harbour, in and near Fife Bay (east of Mullins Harbour), and from two sets of inland people—*viz.*, several *Magawáru* men, whom I examined in the

---

(59) *Op. cit.*, p. 535.

(60) *Ibid.*, p. 540 .

Sámarai jail, and a few *Borowá'i* men, whom I met at a *So'i* feast in *Sílosílo* (between Fife Bay and Mullins Harbour). The several items of information obtained from these sources harmonized perfectly.

Starting from the north, there is a place on Goodenough Island called *Siriwáwu*, which is—or prehaps it is better to say was—a great centre for axe-blades, for the industry and trade in stone implements are rapidly vanishing. I was emphatically assured by a great number of inmates of the Sámarai jail (belonging to all the different tribes of the eastern end) that *Siriwáwu* was the place where the stone blades were made. Whether it was really another quarrying centre, like Sulóga or Woodlark, or whether it was one of the places where the blades used to be finally worked up and polished, or whether it was only a great trading emporium for stone axes, I am, for the present, unable to decide. Anyhow, it was mentioned to me as the most northerly point of the great Mullins Harbour trading route, where the stone blades were procured. Besides the stone blades, other articles, such as formed the usual trade circulating throughout the Massim area, were traded by this route.(61) It is to be remembered that this route connected, in the first place, two Massim districts—that of Bartle Bay and those of *Bónabóna* and of the southern shore of Mullins Harbour.

The articles which passed southwards this way were the fine ceremonial handles manufactured in their best form in the Trobriands and in *Muiú'a* (Woodlark), and called *Diriwá'u* by the Massim of *Bónabóna* (the usual pattern of these is reproduced by Seligman, *op. cit.*, pl. lxi.); and *Konawé'u*, the heavier form, which is more popular in Woodlark and the d'Entrecasteaux group (see pl. lxii. of the same work); the round carved wooden dishes; the ebony lime spatulas, and the carved wooden sword clubs *(Kerépa)*; obsidian *(Nabú'a)*, which was found only in one place on the d'Entrecasteaux group (Goodenough Island); baskets of fine workmanship *(Pópo)* made by the Northern Massim. How these articles came to the villages in and near Bartle Bay I cannot say, but it appears from a remark of the Rev. H. Newton that the natives of that district did not do much trading themselves.(62) Thus it is very likely that the islanders brought them down.

---

(61) *Cf.* C. G. Seligman, *op. cit.*, p. 536, where the main trade, as circulated by the *Túbetúbe*, is enumerated.

(62) ". . . Up the north-east coast there are no sailing canoes. At *Taupota* and *Wedau* there are just dug-outs, shaped stem and stern, with an outrigger . . ." *(op. cit.*, p. 41).

The mainland people traded chiefly pigs and dogs to those of the d'Entrecasteaux group, passing on the articles which they had acquired from the inland natives, such as birds' feathers, fibre belts, etc. They used to get about four or five fine greenstone axe-blades for a pig, and for a big piece of obsidian they paid one plaited fibre belt.

The goods received from the northern islands were further traded by the *Wedá'u* and other coastal villagers to the inland people. The latter exported to the coastal villages such articles as were not obtainable on the grassy seaboard, and which could be easily found and manufactured in the mountain jungle. Amongst these were spears *(Aiera)*, fibre belts *(Tairóro)*, cassowary feather stalks *(Dzıwéni)*, cassowary feathers *(Waíge)*, and some kinds of baskets *(Góba)*. These native words were given to me in Sámarai in the *Wedá'u* language. The *Tairóro* belts consist of a number of strands of plaited, brown fern vine. They were manufactured by the inland tribes on the southern coast—that is, from *Gadaísiu* eastwards—and on the northern coast from Cape Vogel eastwards. As examples of prices it may be quoted that one belt was paid for a piece of obsidian; ten spears were given by the inland people for one clay pot made in *Ιási'iási*, on the coast east of Cape Vogel; ten cassowary feather stalks were exchanged for one pot.

I obtained the following names of villages through which the trading route passed, starting from Bartle Bay and its neighbourhood and going from north to south. The first inland village was *Gelária*—a community often mentioned by Prof. Seligman and the Rev. H. Newton in their works referred to. Then in succession came the *Magawáru*, *Mainá'u*, *Dzibogána*, and *Borowá'i* peoples. Those lived inland, north of Mullins Harbour, and they traded directly with the Mailu. The *Borowá'i* are always mentioned in Mailu as the people from whom the greenstone axe-blades come, though it seems beyond doubt that they did not manufacture them themselves, but imported them from the great quarrying centres in the north.

At the point where the trading route reached the Mailu, around Mullins Harbour, certain complication takes place in the character of the articles traded. On the way through the mainland some of the inland produce (feathers, vine belts, articles of bamboo and other wood, etc.) have joined the articles sent down from the Northern and North-eastern Massim. Again, some of the north-eastern produce gets absorbed by the inland tribes; some is deflected to the east after reaching Mullins Harbour. It is a noteworthy fact, and it shows the great importance of the overland trading route, *viâ* Mullins Harbour, that many of the coastal villages east of *Bónabóna* import the Northern Massim produce *viâ* Mullins Harbour. Thus in Fife Bay, some fifteen miles east of *Bónabóna*, I was told that stone axes and ebony carvings came from the *Borowái* and other Mullins Harbour tribes. In this way the overland trading route feeds both the western and the eastern shores of the southern coast, reckoning from Mullins Inlet. And there takes place a distinct selection, some articles being much more appreciated by the Mailu and some by the Southern Massim. Thus, though the Mailu knew and sometimes used, the ornamental axe-handles in their feast ceremonials, they never possessed them in any great number, used them extremely rarely, and did not appreciate them very much. Again, though one finds many of the fine Trobriand ebony carvings in Mailu, there is a very marked difference between the Mailu and the Southern Massim in the appreciation of these objects, the latter using them much more frequently, and parting with them much more reluctantly, in spite of the fact that they are numerous among them.

The main objects of trade which ultimately arrived at Mailu by this route were, as stated, greenstone axe-blades and arm-shells. As far as I am able to judge, products of the mainland hill jungle, such as feathers, bamboos, etc., also reached Mailu in considerable quantities by that route.

Again, some products of the Southern Massim *(Bónabóna)* were acquired by the Mailu on their expeditions to the east; amongst these were the best kind of baskets *(Nóvo)*, round wooden dishes, and carvings in brown hardwood of a workmanship inferior to those of the Trobriands. From the Mailu the Southern Massim purchased dogs, small pigs (imported from *Aróma)*, boars' tusks, shell discs, and clay pots (called by the Massim *Guréva)*. The Mailu imported a number of netted string bags (Motuan name, *Kiápa)* which they acquired in *Aróma*.

To return from this digression to the Mailu trading proper. The trading expedition to *Bónabóna* returned about the beginning of January, after which they set out for their final expedition to *Aróma*. On this occasion arm-shells—a number of which had been in the meantime manufactured in Mailu and others acquired in the east—were traded for full-grown pigs. These were brought back and were usually at once used for the feast (comp. chap. v., sec. 3).

Before the expedition started for *Aróma* a man—usually the chief of the subclan—used to make a charm and pronounce a spell *(U'úra)*, in order that the expedition should be successful and that they should sell the arm-shells in a lucrative manner and bring back many pigs.

The name of the charm was *Mariwána dĕwa-rĕva* (see pl. xxxviii., figs. 1 and 2). The man who made it remained within his house for three days, and during that time observed the usual taboo—that is to say, he abstained from boiled food and fish, drank no water, and only ate roasted green coconut. The rite was performed immediately before the departure of the canoes in front of the house of every man who was about to sail, by the chief performer, who sometimes had an assistant.

The performers stand in front of the house and, singing an incantation, which I was unable to record, they sweep the platform with long green reeds with a slow swaying motion. Then they tie the reeds round the central, front post of the house, which proceeding is said to have some magical influence upon the arm-shells. The performer sails, as a rule, on the canoe.

With the return from *Aróma* the trading activities of the Mailu are finished for the year; but as there was a big feast in Mailu practically every year the trading was resumed in every *Aurári* season, and was intimately connected with all the preparations for the feast are interwoven with the preliminary festivities—it absorbed the whole social life of the Mailu for the better part of the year. The trading was essentially seasonal and regular, each expedition forming a step in a consecutive series of ceremonial transactions and industrial activities (making of arm-shells, sago, pottery; comp. last sec. of this chapter), and everything leading up to the final expedition which brought back the all-important pig supply. The times of sailing adduced in the above description cover the case of a rather big feast. If it were a smaller one it would usually be held at an earlier date, sometimes as early as December, and the two expeditions to *Aróma* might in that case be reduced to one only.

On the mainland the feasts were held earlier, in the *Lióro* season. Here the natives did not, of course, make all the preparations and trading expeditions. They reared their own pigs or collected them from the neighbouring villages, and they made sago from their own swamp. To this subject it will be necessary to return in describing the feast and the festive activities in chapter v. The importance of the feast in the native social life and the great interest they take in it cannot be overrated. The intimate association between the economic life of the Mailu islanders and their festive activities must also be fully realized if one wishes to form a right idea of their social life. Although my knowledge of the mainland Mailu is very limited, I think that their economic life—their agricultural activities—are also strongly interwoven with the feast. (63)

Among the Mailu the two social phases—the feast and the trading—are so interdependent that if the feast were abolished there would be no scope for trading; if the trading were suppressed the feast would be impossible.

To return from this digression to the trading pure and simple, it is certain that the Mailu community was one of the very important links in the great chain of intertribal trading which encircled the whole of Papua. There is no doubt, however, that articles from the Gulf seldom reached the Massim area and conversely, and it is also a fact that there was no absolute breach of continuity, no absolute impossibility that articles, ideas, and customs should travel from the mouth of the Fly River, and beyond, as far as Woodlark and the Trobriands and the north-eastern coast. Thus, for instance, the ceremonial blades of fine workmanship, made in *Muiú'a* and the Trobriands, were to be found all along the southern coast of the territory, as far, according to Prof. Seligman, as the Fly River. Nevertheless, there does not seem to have been any great cultural influence carried by this stream of trade. The influence of the Gulf culture undoubtedly extended as far as Port Moresby, and beyond to *Huláa* and *Kerepúna;* but it seems to me that it did not even reach Mailu. While some of the Massim objects seem to travel further, the general influence of their culture on the Papuo-Melanesians does not extend beyond the Mailu district.

5. FORMS OF WORK.

General Remarks.—There seems to be no doubt that human communities, standing at different levels of culture and living under different conditions, differ widely and essentially in the quantity and quality of the work they are able to perform; but it is not easy to state, or adequately to characterize, these differences in terms of convincing facts. Mere general statements that the natives are lazy and slack, or that they are good workers, have really very little value.

---

(63) Studying the *Tábu* feast in the *Sinaughólo* tribe I was able to see that it possesses distinct economic features; it is closely associated with the native gardening. This feature, however, is very much obscured among the *Koíta* of the Port Moresby District, who undoubtedly have accepted this feast from the *Sinaughólo;* comp. C. G. Seligman, *op. cit.*, pp. 145 to 150 and p. 18, where it is stated that "according to the *Sinaughólo* it was among themselves that the *Dúbu* originated, being adopted later by the neighbouring tribes." I should add that this opinion is shared by the *Koíta* and *Motu* of *Gábagába*, *Gaile*, and *Tupuseleia*, who acknowledge their indebtedness to the *Sinaughólo*. Further, the mythology of the feast and the knowledge of all its ritual is so much more flourishing among the *Sinaughólo* that it seems certain they were the centre from which the feast in its present form has spread, and among these it is undoubtedly connected with gardening activities.

On the other hand, in order to give facts which would speak convincingly for themselves, it would be necessary to observe the natives at work for a long time; to study the conditions under which they are capable of strenuous work; to see under what circumstances they work willingly and effectively; to investigate the stimuli to their work, aims, incentives, and so on. Such a task is, of course, beyond the capacity of an ambulant ethnologist on a short visit. Much valuable information on such points could be gathered by those who have to deal with natives on the plantations, especially as regards the ways in which the natives are adaptable to European methods of working. More difficult, perhaps, would be the attempt to picture the native's way of working under his own natural conditions. Knowing how interesting and important are the problems of labour in modern sociology, it is possible to appreciate how much we could learn by studying these facts from the ethnologist's points of view.

Being unable to do the best under this heading, I must attempt to take the next best course, and, while avoiding mere generalizations, to make a few remarks embodying some of my observations about native ways of working. The natives are undoubtedly capable of strenuous and continuous exertion. They are able to dance for six hours at a time, and apparently to enjoy it, but it must not be imagined that they do it in a state of trance or that they work themselves up to a high pitch of nervous excitement. On the contrary, they dance the same figure over and over again (obviously rehearsing and practising it), they keep perfectly cool, and there are no signs of visible exhaustion, either immediately or the day after. I never had opportunities of watching the natives for any length of time at any prolonged hard labour, such as strenuous and continuous paddling or garden work, though I have seen them doing both in a manner which would not make one suspect them of slackness or of any lack of efficiency and endurance. I may, however, refer the reader to the remarks of the Rev. C. W. Abel,(64) and especially to the excellent account of men's work in the often-quoted volume of the Rev. H. Newton.(65) Both observers vouchsafe that at times the native does continuous hard work under his own conditions of life.

(64) The Rev. C. W. Abel, "Savage Life in New Guinea" (see chap. "The Papuan at Work").

(65) "In Far New Guinea."

Some of the natives actually like work. One sees a woman sit day after day making clay pots. I saw perhaps about a score of women in Mailu busily at work, without any suggestion of compulsion, throughout hot, muggy days, when everybody else was trying to take a siesta. Again, one often sees men working strenuously, keenly, and continually at the manufacture of arm-shells and of other shell ornaments, or mending ropes or string. Some of them (both men and women) will work alone, absorbed in what they are doing—though, generally speaking, they like to work in groups. Much heavy, systematic, and tedious work falls on the native women. They have to bring in water, firewood, and vegetables, and to prepare the food, day after day, without respite or holiday. Their work is undoubtedly more monotonous than that of the men. Neither men nor women avoid actual hardship in work, for they will sit up all night fishing, and at times of need they do not mind working in the middle of the day, though, as stated above, they like to have a siesta at that time (see chap. iii., sec. 2).

All this does not mean that the natives do not understand "the perfectly aristocratic art of doing absolutely nothing." On the contrary, I formed the impression that they have a great deal of artistic feeling for the beauty of the *dolce far niente*. At times they will sit about for hours talking languidly, looking with vacant eyes at the surrounding world, when no doubt they are not harassed by the unpleasant feeling that time rushes on steadily and inexorably. Whenever anything is done by one man there are usually a dozen looking on, though without keen interest. Whenever canoes return from a journey the whole villege looks on and watches. Sometimes several natives will leave the village, perhaps with fish spears in their hand, perhaps on the way to their gardens, and they will sit down on the beach for hours slumbering or talking, or gazing in front of them.

But it would be quite inadequate to call this "laziness." This term would be either a flat truism, if it meant that in a hot, enervating climate, with no incentive to spur him on, and with all his needs easily satisfied, man does not develop a feverish activity and keen strenuousness; or it would be an obviously false statement if it meant anything more or less. Lazy is an adjective having a meaning or value on a moral background only, and as such ought to be strictly excluded from scientific language.

Communal Labour.—Besides these avowedly general remarks, there are a few other tangible facts as to native ways of working that may be adduced. Working single handed, without adequate tools, the native is often unable to perform some specially hard tasks. Some such he might be able to do, but it would take him so long a time that the work would be rendered tedious or the results be impaired by the action of the weather, etc. Again, in olden days, it was sometimes necessary, for reasons of safety, for the natives to do their work in rather large numbers. It is no wonder, therefore, that communal work was a prominent feature of native economics, and that hardly any of the more difficult and bulky tasks were performed without appeal to the community for help, or, at least, to a part of it. Communal work is also well in keeping with the general communistic character of the native economics (comp. next paragraph). Exactly as in the consumption of goods the benefit to the owners very often lies in the honorific title rather than in the amount of his own individual consumption, so in the labour the owner often seems to organize the communal work and subsequent feast, and not so much to bear the burden of the greatest amount of work done.

In olden days, when a big *Ilimo* tree had to be cut on the mainland in *Baíreba*, in order to make a dug-out canoe, a strong force of men used to help the owner of the canoe. Not only his own relatives *(Emegi goina;* in Motu, *Váravára),* but a number of the clansmen and villagers from other clans as well joined in the work. They helped in the cutting down of a tree, which in the old days, when stone axes were exclusively used, must have been a rather heavy task. The dragging down of the tree to the shore was done by a number of men who, as they hauled on the log by means of strong vines attached to the trunk, sang the refrain "*Deuoo, deuoo, ai.*" Other men acted as scouts and kept watch over the safety of the working party.

After the log was dragged into the village there was a feast given by the future owner of the canoe to all those who had helped in the work, for which a pig was killed.

The scooping out of the canoe was done by the owner, helped by a few of his friends only,(66) but at the final trimming of the double canoe *(Oró'u)* a larger number of people took part: that event also was accompanied by a feast.(67)

Again, at some stages of garden making, collective labour is used. On the mainland each man clears his own portion of the communal garden, as far as the cutting down of the small scrub is concerned, but in the clearing of the heavy timber the work is done collectively, all the clansmen working together and their friends joining them. There is a big feast, given by the owners, in which all the workers participate. On Mailu Island the hard task is the clearing of the strongly-rooted *Lalang* grass *(Tsilówo)*, which is done with long sticks (see sec. 1 of this chapter). The friends and relatives of the owner of the garden (which on Mailu Island is not communal, but private, property) join and do the work. In this case there is, of course, also a feast as a kind of payment for the work done. Both at work and at the feast the workers wear festive adornments *(Láo)*, though not of a very gaudy nature. They insert *Pépe* (pandanus streamers)—which look like long white paper tapes—into their armlets, and cockatoo feathers are stuck in the hair, which is bound up with *Pépe* so as to form a *chignon*. No face or body painting is done. The feast, for which no pig is killed, is, as a rule, held at the garden, the owner (or owners, on the mainland) providing bananas, taro, sago, and fish, if this be available, and making everything succulent with *Dehóro* (Motuan name for coconut cream).

---

(66) Comp. canoe-making on pl. xxxvi., fig. 2.

(67) When the sail is sewn together from single strips of matting a number of men help in the work, who are entertained at a feast by the owner of the *Oró'u* (or owners, see chap. iv., sec. 4). The workers are not decorated at the work or at the feast.

There was also a good deal of communal labour done in connection with the building of a house.(68) The big piles forming the main framework were brought from the mainland by the owner, assisted by his family. Then, a great number of people—practically all the men available in the village—are summoned to help in the erection of the piles. On this occasion the *Láo*, or ceremonial dress, is put on. There is, of course, a feast, consisting of fish and vegetables, and the future house is decorated. Several of the subsequent stages are done by the owner himself, assisted, as usual, by one or more of his family and near friends. In this way they bring lawyer cane for lashing, sticks and poles for the thatch frame, and the sago leaves used for the roof. The latter work is done by collective labour. The complete house is decorated and a big feast *(Urúma itsitsi*, "house-making feast") takes place, but for this also no pig is killed.

When one of the big nets *(Gaúma)* was made, all the men of the *Dúbu* (subclan), of course, participated, as the *Gaúma* was collective property—*i.e.*, was used in common by all the members of the subclan, though the headman had a normal over-right to it. The men do not make any *Láo* (adornment). There is a common feast, in which fish is an essential item.

Sexual Division of Labour.—It is a well-known fact that among practically all the native races the domain of man's and woman's work is very definitely marked off, and that no one ever thinks of encroaching upon the sphere of action of the other sex. This feature is, I think, quite universal. Among the Papuo-Melanesians and Massim even the details of the division of labour seem to be identical throughout the whole area. My inquiries, however, into this matter have not been sufficiently careful for me to be able to bring any very interesting facts to light. From my notes, however, as well as from what I remember having seen, the state of things in Mailu seems to be, in this respect, identical with what obtains among the natives of Bartle Bay. These have been described by the Rev. H. Newton, to whose account the reader may be referred.(69)

---

(68) Comp. the description of the house and house building, chap. ii., sec. 4.

6. PROPERTY AND INHERITANCE.

Introductory Remarks.—The question of the tenure of property, or real law, is so important that it has been necessary to allude to it on several occasions in preceding paragraphs.(70) In this place some general remarks will be made and the scattered facts stated elsewhere will be summarized. What has been said before, in connection with land tenure, must of course be borne in mind—namely, that "property" or "ownership" are terms which are used here not in our (modern European) legal sense, but as short expressions for the sum of the customary right a man, or social body, enjoys with respect to a material object.

Communism.—This term is often applied with reference to the mode in which goods are used by natives of the same general stage of culture as the Papuasians. Here again detailed, concrete facts must be given, and the general conditions of native life kept in view, if the term is to have any meaning at all. The natives of Mailu live in small village communities, the members of which are in constant mutual contact and entirely cut off from the outer world, so that there is no possibility or opportunity of exchanging the majority of goods in common use. On the other hand, these goods are quite abundant; food, materials for clothing, firewood, common implements are neither scarce nor difficult to prepare for use. There is then no room for very strong individual appropriation, and the natives are certainly extremely liberal and "communistic," in the sense that a man in possession of food or objects of common use readily gives them away temporarily, and, in the majority of cases, even permanently; so also a man in possession of any privileges will freely share them with others. On the other hand, it must be emphatically stated that there was no "communism" in the sense of all men having equal, free, and unconditional access to all goods and privileges. From many details previously given the reader will be aware, both that objects of common use, whether food or implements or what not, did belong to certain men, who had the right to give them away, and also that certain privileges, like participation in a hunt or in a fishing expedition, or a passage on a canoe, had to be granted by the "owner," or master, of the given privilege, though these were granted very easily indeed.

---

(69) *Op. cit.*, chapters on Men's Work and Women's Work (chaps. viii. and ix.).

(70) Thus in sec. 4 of chap. ii. the rights of a man to his house were discussed, and again in describing the *Góra* and *Onága* institutions the problem of property and rights to things had to be touched upon. The most important form of "ownership"—land tenure—was described in sec. 1 of this chapter, etc.

And this right to give away things, to grant access to privileges, was undoubtedly highly valued by the natives. At a big hunt, with grass burning, in which I took part, inland of Port Moresby, on the *Laróge* River (usually but incorrectly called *Lalóki* by Europeans), a curious ceremony took place. In the morning, before daybreak, all the men in the camp assembled, and one man, the traditional "owner" of the privilege of communal net hunting and grass burning on that tract of country, pronounced in a loud voice certain ceremonial words in a *Koíta* language, which were answered by the loud acclamation of all the men. I was told afterwards by *Ahúia*—an excellent informant—that the trend of the harangue was simply:—"My great grandfather and my grandfather and my father used to make big hunting on these grounds. Now I give the order for the hunt. We will hunt to-day." I did not take notes of the original text in *Koíta*, but *Ahúia's* information is quite reliable, even when he gives a free version. I was also told by him that such a formal opening of a hunt was absolutely essential for its legal constitution. Should any group of the natives burn grass and hunt that tract of country without having obtained such a formal consent from the master —for which the master's presence was, of course, also necessary—the master's clan would seriously resent such breach of *étiquette*, and, in the olden days, even fights might have resulted from it.

I am quoting this incident, which I observed among the *Koíta*, because I was told in Mailu that a similar state of things obtained there, though I failed to record any of the details, and I had no opportunities of observing any facts of that type. The incident quoted is quite characteristic of the point at issue. The natives indeed have a keen sense of clan privilege, or village community privilege, which as a rule is vested in one man—the headman of the village or of the clan, as the case may be. Thus the man giving the order for the hunt was a *Idúhu róhi*, a headman of a clan. In Mailu the *Dúbu gubína* would have to decide when a net *(Gaúma)* should be used, or when a canoe should sail, and who should take part in the operation. It is characteristic that there is only one word for *owner*, and for *headman*, *chief*, or *master* (in Mailu, *Gubína;* in Motu, *Biagúna)*. The main psychological element in this form of "ownership" seems to be rather the craving for social prominence than desire for a greater share of material goods. The chief at the annual feast, the man who makes a big catch of fish, the owner of a pig which is slaughtered—these do not get a greater share than their friends; indeed, in many instances they get much less (comp., for instance, sec. 2 of the next chapter, concerning the taboos inherent to dugong magic). But they play a prominent part in the performance; in the first place they divide the goods to be distributed, and they formally give them away. And this form of using and enjoying wealth is immensely valued by the natives.

Another set of facts must be referred to in discussing native views concerning property and real rights to things. I mean the magical rights of an economic nature, appertaining to fishing, gardening, and hunting, which are owned by individuals and used for their own benefit (see chap. v., sec. 2). It is clear that the natives regard those rights as being of economic value, and the fact that, under modern conditions, they barter them shows that they even treat them simply as "goods"—as interchangeable privileges.

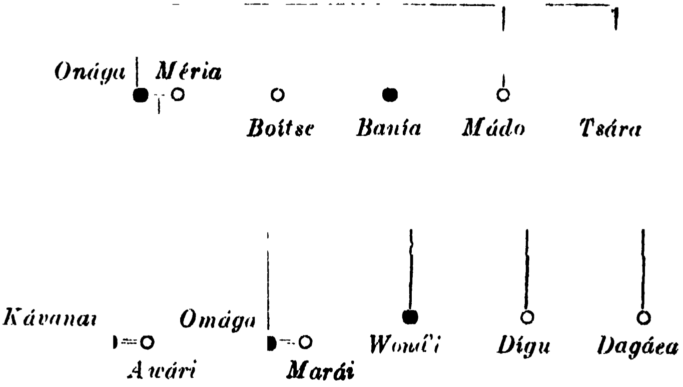
Native View of Economic Value.—When discussing inheritance and marriage gifts with the natives, I was struck by the fact that I had a tendency to attach the greatest importance to certain classes of goods, whilst the natives seemed to pay much more attention to others. In other words, I was impressed by the fact that the natives have a scheme of values different from our own. Thus, as land on Mailu Island was allotted to individuals and inherited in the male line, I used to pay the greatest attention to inheritance in land. The natives, however, used to pass quickly over this subject and give me only few details with reference to it, treating it as altogether unimportant, and dwelling much more upon the distribution of coconut palms and native ornaments.

Consequently I inquired into the subject, and obtained very clear, definite, and unanimous answers, with which a number of independent witnesses unhesitatingly concurred. In the native's mind, the native ornaments form the most important class of property. Over these there is most concern and discussion when dividing a dead man's property among his heirs, and on other occasions when property is divided or exchanged. Arm-shells, shell discs, boars' tusks, dogs' teeth, bird of paradise feathers—these form the class of goods which loom as the most desirable form of property in the mind of the native. Pigs come into the same category, though it must be remembered that the natives of Mailu Island did not rear pigs extensively, and that these animals were usually disposed of at a feast, immediately after they had been acquired on the trading expedition to the west. On the mainland, where they were reared by the villagers, they were highly valued. Dogs were also a highly esteemed form of property. After the native jewellery and the domestic animals, the ownership in coconut palms was most highly valued. The garden land had, in a sense, no value on the mainland, where each individual possessed, by the fact of membership of a clan, the right to acquire as much garden land as he desired, or, rather, as much as he and his wife were able to cultivate. The lack of value in this sense was due to the fact that there was no limit to the land which might be taken by any individual, and that no rights in land were ever acquired or exchanged; in fact, such a proceeding would have no object, and it would only have been a breach of custom. The land had, however, value in the sense that the members of a clan, as one social unit, would essentially resent and oppose any encroachment upon their territory on the part of outsiders. In spite of this, on Mailu Island, where land was parcelled out among the individuals, it does not stand as a very important item in the native ideas of value. As a matter of fact, there is plenty of ground on the island, and the main difficulty lies in working it rather than in obtaining the rights to it.

The ornaments or native trinkets are displayed at feasts, both on the person and on the house. They are sometimes produced and shown to friends, and visitors, and people in the village usually know who has specially fine arm-shells or shell discs, necklaces, etc. The natives are by no means churlish and close about lending their ornaments, and at dance or feast time one often sees ornaments borrowed from relatives and friends.

Inheritance.—The most desirable part of a man's property, the personal ornaments, his wealth (*Babadá'u;* in Motu, *Kóhu*), are inherited by his "own," as opposed to his classificatory, brothers only. They share, roughly, in equal parts, though the eldest brother seems sometimes to get the first pick. The parents, the sisters, the widow and children of a man do not get any share in his jewellery. The coconuts are divided among a man's brothers and sons. If the latter are young they do not get very much at the time of death, but they receive their share later on. The house is inherited in the male line, as stated above, so that if a man dies his eldest son becomes the "master" or "owner" *(Gubína)* of the house. If he is a small child at his father's death the title is latent (the father's younger brother being considered "owner" or "master" for the time being), but as soon as the boy is grown he comes into his rights. The right to the gardens, as frequently stated, is hereditary in the male line—being on the mainland implicitly included in the clan membership, or on Mailu Island referring explicitly to the paternal garden land.

A few concrete examples, accompanied by pedigrees, will illustrate these general rules. The following is the account, given me by *Omága*, one of the Mailu village constables, of what happened after the death of his father, *Onága*, and the pedigree shows the relationship of the persons concerned:—



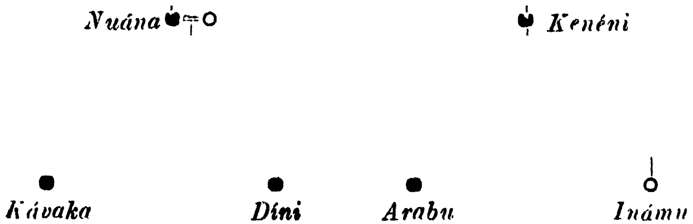
Omága's father, *Onága*, died, leaving two younger brothers, *Banía* and *Tsára*, and two younger sisters, *Boitse* and *Mádo;* as well as five children: the boys *Kávanai*, *Omága*, and *Woná'i*, and the girls *Dígu* and *Dagáea*. At the time of *Onága's* death all his children were young, and his brother *Banía* was regarded as "master" of the house, this being then tenanted by *Banía*, his wife and child (not mentioned in the pedigree), *Tsára*, and *Onága's* widow and children.

All the coconut trees left by *Onága* were also taken over by *Banía*, who subsequently gave some of them to his younger brother *Tsára*. *Banía* also took charge of the garden land for as long as the boys remained young. When *Kávanai* married and thus became a grown man, *Banía* gave him over the whole land left by his father and all the coconut palms, except *Tsára's* share. When *Omága*, *Kávanai's* younger brother, grew up and married, the latter gave him his share, both in garden land and in coconut palms. Again, when the youngest boy, *Wonáʼi*, becomes grown up he will receive his share from both his elder brothers.

The native ornaments, however, all went to *Bania* and *Tsára*. Neither *Méria*, *Onága's* widow, nor his sisters, nor his children, received any share in his native ornaments.

One other actual pedigree will serve to illustrate further the general principles of inheritance.

Pedigree.



When *Nuána* died, not his sons, *Kávaka* and *Dini*, but his younger brother, *Kenéni*, inherited his wealth. Moreover, as *Kávaka* and *Dini* were grown up when *Nuána* died, and had by that time received their shares in coconut palms, all the remaining coconut trees of *Nuána* went to *Kenéni*. After *Kenéni's* death, however, part of the coconuts, and perhaps some of his wealth or jewellery would return to *Kávaka* and *Dini*.

This state of things would lead apparently to a congestion of riches, in the form of native ornaments in the hands of the last survivor of a large family of brothers. It must be remembered, however, that native ornaments were constantly manufactured, that they were exchanged or distributed in connection with feasts, ceremonies, marriage transactions, etc., and that native wealth often changed hands, and so never could accumulate to any large extent. Thus the inheritance of native ornaments by the deceased man's brothers—with a very small share sometimes falling to his paternal first cousins—did not entail any serious strain in the economic equilibrium in the village.

There was no special legal mechanism to enforce all the transactions connected with inheritance. Thus the brothers had to agree upon the division of the wealth; the children had to come to an understanding with reference to the coconuts and garden land, etc. When the children were minors at their father's death, and all their gardens and coconuts were under the care of their paternal uncle, it was of his free accord that the latter gave them their due shares, so that they were consequently entirely dependent upon his good faith. When I asked *Omága* what would have happened if his uncle *Bania* would not give him and his brothers their due shares he was not able to answer. He dismissed the hypothesis, and said a man would always give his nephews the garden land and coconuts which belong to them by right. As a matter of fact, it must be remembered that a man had always enough coconuts and garden land for his own use. Again, *Bania* lives in the same house with *Omága* and *Kávanai*, and their mutual relations are, to my knowledge, very intimate and extremely good. So that there was no reason, and no psychological likelihood, why any quarrels should arise among the natives in matters of inheritance in land and coconuts. As to the division of wealth among brothers, I received the impression that the customary rules for division were very definite, in the sense that all had to receive more or less equal shares, and that the only deterrent was the fear of incurring the contempt that would inevitably be shown for any manifestation of cupidity or act of rapacity.

7. INDUSTRIES.

Introductory Remarks.—In this section I shall enumerate and briefly describe what may be called the industrial products of the natives, the most important objects in use, and the articles of trade manufactured locally. The building of native houses—a very important native craft—has already been described (chap. ii., sec. 4). The native canoes, especially the large double canoes with a platform *(Oró'us)* are, as has been pointed out before, both objects of extreme importance in the tribal life of the Mailu islanders and articles of trade exchanged for pigs in *Aróma*. Their construction has been described in a previous section (chap. iv., sec. 4).

We will complete the series by saying a few words about the following articles:—(1) Pottery—The Mailu pots, being essential both for use in their own households and as articles of trade. (2) Arm-shells and other shell ornaments.—These were indispensable for the Mailu islander as means of acquiring pigs; in fact, they were the standard article given in exchange for pigs, canoes being paid over only when arm-shells were short. Though a considerable number of these articles were imported into Mailu (comp. above, chap. iv., sec. 4) the local manufacture was very important, and the

Mailu also made other shell ornaments. (3) Baskets.—These, some of which were acquired from the Southern Massim, were traded to a limited extent; they were very important in native life as being the only means of carrying foodstuffs, firewood, and objects in daily use, when on a journey. (4) Stone implements were to a great extent imported into Mailu, though some were locally manufactured, and a few are still made and used in Mailu. (5) Carvings were never a speciality of the Mailu, and only very rough and inferior work is produced.

The technological side of the industries here described is very unsatisfactory, as throughout my work I was concerned with the social life of the natives rather than with technology. The following account is meant chiefly to be a survey of those main economic activities which are directed towards the production of objects of use and trade.

Pottery.—This art was the exclusive monopoly of the inhabitants of Mailu Island, but I am not able to say whether this was owing to the fact that there was no clay available anywhere else in the district, or whether this is an example of the extreme *inertia* of the natives towards the alteration of a tribal status sanctioned by tradition. The natives of the district always state that suitable pottery clay is only available on Mailu, but this means merely that they do not know of any other place.

On Mailu Island the clay is obtained in many localities from deep holes dug in the alluvial flat, behind the village. It is fairly clean, does not contain many small stones, and is used without any previous treatment. It is brought into the village in baskets, plaited of coconut leaves, and it is wrapped in leaves to keep it moist. It is usually brought in the morning and used the same day.

The accessories of pottery consist of a ring of banana leaves, half a coconut shell, a shell of a species of *Venus*, and usually a large melon shell (*Melo diadema*), or, in place of the latter, another coconut shell, which is used as a receptacle for water.

The method of pottery making may be described as a "method of coiling," an expression used by Prof. Seligman with reference to the technique of the Southern Massim.(71)

The clay, as it is brought from the pit, is fashioned into long cylindrical "fingers" or "sausages," by rolling between the two palms (comp. pl. xl., fig. 1, the woman on the right-hand side). The worker (always a woman) takes a large handful of clay, kneads it a little, and rolls it into the desired shape. The "sausages" are about the thickness of a finger and some 40 cm. long. The first sausage is coiled on the rim of a half coconut shell, which thus acts as the nucleus of the pot. The shell is placed in the ring, made of banana leaves (see pl. xl., fig. 1). After the first sausage is coiled, the woman joins another to its end. The coiling is done in the following manner:—The free end of the clay sausage is held in the left hand, the right hand joining it to the rim by the pressure of thumb and forefinger (see the woman on the left of pl. xl., fig. 1). At this stage of the process the successive coils, though joined to each other and flattened, are to be seen plainly, as well as the finger marks. The unfinished pot looks, in fact, as if it were streaked horizontally and grooved vertically.

---

(71) *Op. cit.*, p. 25, footnote.

The successive coils being placed in broadening circles, the pot is first shaped into a roughly conical form, and this can be called the first stage in the process. (See the pots on right and left on pl. xl., fig. 1).

The next stage consists of the smoothing of the rough surface, in which process the fissures between the adjoining coils are obliterated, and in the imparting to the pot its final form and ornamentation. The pot is first smoothed and scraped. This is done by using both the palm and fingers of the hand and the *Venus* shell referred to. Usually the shell is handled with the right hand on the outer surface and the left hand passed inside. The scraping and smoothing by means of the shell being done upon that part of the clay surface, which is supported by the open left hand (comp. pl. xl., fig. 1; the woman in the middle).

By the same means (shell and open palm) the final form is imparted to the pot. About one-third of the distance from the top of pot the original, simple conical shape is altered by the formation of a waist, immediately below which the pot bulges, while towards the top is opens out in a conical form. This last conical portion forms what might be called a broad rim or lip of the pot (*cf.* pl. xl., fig. 1; woman in the centre).

After the completion of the upper part of the pot it is taken out of the coconut shell, which so far has served as its bottom, and a few coils are put in to cover the hole. These are smoothed down by tapping the surface of the pot with the hand and scraping it with the shell. It may be mentioned, by the way, that the Mailu technique in pottery does without the heating or tapping which among the Motu forms the longest stage in their manufacture. In consequence of this the Mailu pots are said to be of inferior quality and durability.

The pot is now ornamented. Its rim is covered with one of the traditional ornaments, of which there are some eight or nine in use among the Mailu, but I failed to record them.

The engraving is done in the soft clay with a thin piece of wood.

The third and last stage consists in the burning of the pots, which is done in the afternoon. They are laid on the sand upon the beach, usually several at a time, the mouth of the pots being turned to windward. Dry sticks are laid all round them individually, the greatest amount of fuel being placed on the weather side, so that the heat may penetrate well inside the pots.

As mentioned above, pots are made by women exclusively, who, during their manufacture, are stated to observe a strict taboo; that means that they do not eat anything from the moment they begin their work until the time they have finished burning the pots. Whether, considering that the natives hardly ever accepted food during the day, this taboo is very important, I was unable to ascertain. At any rate, several informants asserted that it was so, and I received the impression that pottery is considered to be a serious, and perhaps even to some extent a sacred, activity. (72)

Arm-shells (73) *and other Shell Ornaments.*—The arm-shells, with the exception of the strings of shell discs, are the most highly valued articles of native ornament, and they form one of the principal means of exchange. They are made of the shell of *Conus millepunctatus*, and Mailu was one of the chief centres of their manufacture. I have heard native *connoisseurs* pronounce those made here to be the best, though possibly this statement may only mean that the best arm-shells come from the east and that the Mailu were the middlemen who imported them and sold them to the natives of the Central District (comp. chap. iv., sec. 4).

The *Conus* shell *(Opi'ópi)* is, in harmony with its name, of an almost perfectly conical shape, and the armlet is made out of a ring formed by a transverse section of the shell cut near the base. The "cutting" is done by means of a stone. For this purpose any stone of a fairly small size (about that of a child's fist) can be used, provided it has a blunt point. With this point the manufacturer (always a man) taps the shell with light blows in quick succession, under which its rather soft calcareous substance is, one might say, worn away along the line where the blows are struck. In this manner the base of the cone is first cut off. Then another similar cutting is made, parallel to the plane of the first at a distance from it of about one-third of the total length of the shell, and this second section forms the ring.

---

(72) This is also the opinion of the Rev. W. J. V. Saville, to whom I am indebted for having drawn my attention to the pottery taboo.

(73) Comp. the description of arm-shells in Seligman, *op. cit.*, p. 513, and pl. lix., where several of them are figured.

The next stage consists of the removal of the outer surface of this ring and of the polishing of its internal surface. The former must be rubbed quite clear of all colouring matter, even to the removal of the punctiform pattern, in order that the arm-shell should be quite white when finished. The ring is then polished on the inside, as far as may be—that is to say, so long as it is not made too thin and weak. The object of this process is to give the arm-shell the biggest possible aperture, for the larger this is the larger the arm which the arm-shell is able to fit, and consequently the greater is its value.

The polishing of the outer surface is done on a broad, flat piece of sandstone, and a piece of the same kind of stone, shaped into cylindrical form and pointed at each end, is used to polish the inside by inserting it within the ring and working it to and fro. During the polishing process of both inner and outer surface the shell is kept moistened.(74) The same name, *Urú'a*, is given to both the flat and the cigar-shaped sandstone, the name denoting the material and not the form, as is always the case in native technological nomenclature. The polishing process is called *Urúru*. After the arm-shell is ready it is perforated in two or three points, near the lateral opening formed by the lip of the *Conus* shell, and is ornamented with shell discs (*Sápisápi*, a universal Papuan term, probably originally Motuan) and with the black wild banana seeds.(75)

Besides the arm-shells, the Mailu also manufacture the shell discs called *Sápisápi*, and another kind of red shell discs, which differs from the former in that they are coloured on one side only. The *Sápisápi* are worn strung on a string like Chinese perforated coins, when they collectively form long cylinders.(76) The Mailu red shell discs are worn fixed by their flat surfaces to a string, thus showing one side only. Large white shell discs are ground down from the base of the *Conus millepunctatus*, and the pearl oyster shell is used to manufacture an ornament shaped like a half-moon, which is worn as a breast ornament by men and women, but I failed to record the technical details of the manufacture of these last-named objects.

In former times the *Conus* shell was used to make small axes (*Óba'úa*). After the upper ring had been detached in order to make the armlet, the residual cone was split longitudinally, and small blades could thus be made. This use of the *Conus* shell has, however, now been abandoned, and I was unable to purchase any old specimens, though a few were made for me in the old fashion.

---

(74) See pl. xl., fig. 2.

(75) Comp. the two arm-shells on the left side of pl. lix. in Seligman's book.

(76) See pl. lx, in Seligman, *op. cit.*

Baskets.—Several forms of baskets, all of local manufacture, were used in Mailu, but I was not able to grasp and record the technological principles of their manufacture. Consequently I can only give a general description of their basketry and mention the varieties.

1. *Apáka.*—In this, the rudest form, the basket is simply plaited from a coconut leaf. The midrib is split longitudinally and the leaflets interplaited in such a way that the pieces of rib form the rim of the basket. To this a rough handle is sometimes attached. This form is known all along the southern coast as far as Port Moresby, and I was told that the same kind is used in the Gulf and on the Fly River. Among the Motu it is seldom used, as there the universal use of the string bag *(Kiapa)* eliminates all need of other receptacles. Among the Mailu the *Apáka* is used for carrying clay, sand, wood, shellfish, and all sorts of coarse and dirty materials in general. It is very easily made, and its manufacture does not require more than half an hour, but it only lasts for a short time and is readily thrown aside.

2. *Réva.*—This kind is similar to the foregoing, being also made of coconut leaves. It is used chiefly for catching fish and shellfish in the *Rú'i* form of fishing, for which women go out at night with torches of dry coconut leaves *(Karéta)*. It is never used for carrying things.

3. *No'obóea.*—This is a circular-shaped form of basket, made of coconut leaves, in a much more elaborate fashion than is the case with the two preceding kinds. It also is never used for carrying things, but it often serves as a platter, solid food taken out of the cooking pot being placed on this, or on a wooden dish (comp. chap. iii., sec. 1). The *No'obóea* is also used sometimes as a strainer in the preparation of coconut cream *(Dehóro)*.

4. *Nóvo.*—This basket, which is solidly made of some kind of cane, is the most important form, serving as the general carrying vessel of the Mailu. It is more or less flat, and has an oval-shaped mouth. Two strands, attached to one side, pass through two holes in the opposite side, and are joined by a broad band of bast. The woman carries the basket with this band across her forehead, the basket resting on her shoulders. In these baskets, and in these alone, heavy loads of native vegetables and firewood are brought into the village from the gardens. It is also used on journeys, when the

woman carries her own, and her husband's, personal belongings *(Tóba)*. This form is made in Mailu, but it is also imported from the east, from the Southern Massim of *Bónabóna*, and from the neighbouring coast, where they are apparently more skilful in the manufacture of the *Nóvo* than are the Mailu. The *Nóvo* form of basket is not known to the west of the Mailu district.

Stone Implements.—At the present day, when steel axes, adzes, and chisels are used for felling trees and scooping out canoes, the natives no longer make stone implements. It is therefore not possible to give an account of this subject from personal observation; I was only able to question the natives, a proceeding which is particularly unsatisfactory when material objects have to be enumerated and described. The natives, however, gave me the names, with some details, of the following implements.

U'a.—Stone axes used for felling trees and scooping out canoes. The stone blades, made of dark-green volcanic tuff, were imported from the east (comp. chap. iv., sec. 4), and those used for the first-named work were very large and strong, and were permanently fixed to their handles. For scooping out canoes smaller blades were used, which could be turned in their sockets and thus be fixed at any angle to the striking plane. This adjustment permitted them to be used for hollowing out canoes through a fairly narrow opening.

When a blade broke they took it out of the handle and sharpened it on a broad flat sandstone. Thus in the course of time the large blades became reduced in size.

Ota is the small blade used in the sago pounder (comp. chap. iv., sec. 1). This blade was manufactured locally, and it is still made and used. Unfortunately, I was not able to observe the process, as the necessary stone comes from *Abá'u*, and there was none of this in the village during my stay.

The sandstone implement used for polishing the arm-shells and axe blades, and the implement used for grinding down the arm-shells from the inside, have been described.

Obsidian flakes, obtained in a manner described above (chap. iii., sec. 1), were used for shaving and as chisels for finer carvings, such as those of limesticks.

Carvings.—There were a few objects regularly carved by the Mailu. Amongst these were the carvings on the vertical boards closing the dug-outs of both sides in the large double canoes (comp. chap. iv., sec. 4). So also those on the boards forming the verandah roofs of the houses, and on the outside of the piles (comp. chap. ii., sec. 4). The fine carvings on smaller objects were made in Mailu, in imitation of those of the Southern Massim, but were quite inferior to the latter.

CHAPTER V.

MAGICO-RELIGIOUS ACTIVITIES AND BELIEFS.

1. DREADFUL BEINGS; SPIRITS; SORCERY.

Fear of Darkness.—It is important to study not only the ideas of the natives concerning ghosts and spirits, but also their emotional reactions towards such ideas—not only how they picture in their minds beneficent or maleficent beings, but how they behave, and emotionally comport themselves, towards these imaginary beings which to them are so real.

Of the natives of Mailu it may be emphatically stated that they hold in great fear the terrors lurking in the shadows of night. Nothing would induce a man to venture out alone at night, even for a few hundred yards from the village. I observed that at dusk the men became very nervous and hastened towards the village, so that darkness should not overtake them when alone in the gardens. One of the oldest and wisest men in the village—in fact, the greatest authority on native lore and custom—*Papári*, was quite as unprepared for such risks as any of the boys and young men. I offered to some young men who had been much influenced by the white man's teachings the, to them, large reward of ten sticks of tobacco if they would walk alone at night about a quarter of a mile from the village to the Mission Station, but they smilingly declined the offer. Their fear is greater on a dark than on a moonlit night, and they are also afraid of darkness in their houses; hence the custom of keeping the fire going during the night. If a man has to leave a house in the night to satisfy a necessity of nature, he arouses another person to keep him company on his walk to the garden or to the seashore, a statement which is confirmed by Mr. Greenaway, who has lived for a long time amongst and with the natives.

I believe that in this respect the natives of Mailu do not differ from the other Western Papuo-Melanesians, all of whom share this intense dread of darkness. On the other hand, it is interesting to note that the general fear of the night is not an essential characteristic of this stage of culture or even of this type of human society, for among the Northern Massim of *Murú'a* (Woodlark Island) I found an entirely different state of things, the men volunteering quite readily to go alone at night for long distances out of the village.

Nature of the Dreaded Beings; the Bará'u.—Returning to the Mailu, the next problem is of what kind of maleficent beings are the natives afraid ? We modern Europeans are so accustomed to associate all dreadful things definitely with the idea of death, to treat them as ghosts, visitors from the other world, or supernatural beings, that the idea that living men should be the object of a superstitious and annihilating fear seems to us nearly incredible. This was, at least, my own attitude of mind towards the facts I found in Mailu. Yet it seems absolutely beyond doubt that the Mailu and, as far as I know, all the Western Papuo-Melanesians, are exclusively afraid of evil magicians, as constituting the one and only dreadful danger threatening them out of the darkness of the night.

The *Bará'u* (the exact counterpart of the *Váda* of the Central District) is to the natives a living man, endowed with the knowledge and powers of making himself invisible, and of working evil magic with the help of the night and of his own invisibility.

The *Bará'u*, as he prowls about at night, invisible, able to kill his victim and desirous of doing so, is always thought of as some individual man from a neighbouring village, in body, not in spirit, nor as his double. When the *Bará'u* leaves his abode to go on his nefarious errand, his place in his house is empty—he goes away bodily.(77) The *Bará'u* smears himself all over with some magical herbs, and mutters some spells and becomes invisible. Some people say, however, that he is only invisible from his front aspect and that he can be seen from behind, and this is the reason why people see often mysterious shadows moving in the dark. He can be heard, however, as he moves about. The *Bará'us* travel great distances; they come like the wind, quickly and invisible, but as to the exact method of these aerial flights my informants were unable to give me any details, saying that this was entirely the concern of the *Bará'u*, and referring me to such a one for further information. This, of course, was hopeless, since a *Bará'u* is extremely careful in preserving his *incognito*, especially to white men. I knew, however, the names of some men in Mailu who were suspected of belonging to the craft, and these were precisely the men who would not even give the popular version of the problem.

---

(77) I have dealt on the subject of the *Bará'u's* bodily wanderings, because there are several statements about New Guinea sorcery, showing that there is a kind of emanation, or "sending," projected from the sorcerer and attacking the victim. Thus, Prof. Seligman describes the "sending," emanating from witches, as it exists in the belief of the natives at Bartle Bay and inland from there *(op. cit.*, pp. 640-643). It is very important to call attention to such differences in belief as exist between that recorded by Prof. Seligman and that found in Mailu. Prof. Seligman's statement is extremely detailed and concrete, and seems to me to be as well established as anything we know about the Papuasian natives. What I am about to say, consequently, does not refer to that statement. I have found a remarkable tendency among the white observers to introduce into native ideas "spiritual agencies," "emanations," etc. Thus, some white men, who knew Mailu perfectly well, informed me that *Bará'u* is an evil power, projected by the sorcerer. *Bará'u* is, indeed, the name for the sorcerer's evil power, but this never wanders about without its receptacle, and there is nothing of an "emanation" in the native belief. Again, in Port Moresby, one of my friends, a resident of long standing in Papua, and a high authority on the natives, maintained in an argument with me, that *Váda* was a "sending" from a sorcerer. A careful subsequent inquiry carried out under the patronage of *Ahúia*, finally convinced both my friend and myself that *Váda* was no "sending" in any sense of the word, that it was the sorcerer in his own person, and that when he went out to kill a man, he had to leave his own abode and actually make the journey.

There was some lack of precision in the statements, and lack of agreement between my informants, when I came to inquire about the details of the method used by the *Bará'u* in securing his victim. In broad outline, the version universally approved by my informants corresponded exactly with the description given by Prof. Seligman of the *Koita*.(78) The *Bará'u* comes to Mailu and finds his victim asleep in the house. He kills the man and restores him to life again; or he touches him with a magical substance, when he pines away and presently dies. Or else a *Bará'u*, fixing upon two or three men fishing or walking in the gardens, stuns them with properly administered blows of a club, but the victim never knows he has been operated upon by a *Bará'u*.

In general outline this is the belief universally held. There were, however, discrepancies among my informants' statements in respect to details. Thus some said that the *Bará'u* opens the man's body and takes something out of it, or puts something into it—a version identical again with that obtained in more detail by Prof. C. G. Seligman among the *Koita*. Another of my informants told me that the *Bará'u's* method consists in the touching of a man's body, or even his footprints, with some leaves, and then in putting the latter into a preparation also called *Bará'u*. The ingredients of this mixture are salt water, wild ginger roots, and *Góbu*, the bark of the native cinnamon tree. Yet another informant said that sometimes the *Bará'u* simply touches the victim with his mixture.(79)

---

(78) *Op. cit.*, pp. 170 and 171. *Cf.* also pp. 187 and 188 and pl. xxxi.

(79) This also corresponds with what Dr. Seligman found to be the practice amongst the *Bará'u* of the Milne Bay natives (*op. cit.*, pp. 638 and 639). As the influence of the Southern Massim is strong in Mailu, I am inclined to think that the two above-mentioned versions concerning *Bará'us* may be the outcome of the Mássim beliefs superimposed upon the original doctrines derived from the Western Papuo-Melanesian stock of ideas.

Again, one of my informants—a very reliable man—assured me that whenever a *Bará'u* comes to the village and enters a house with the intention of killing a man, he always tries to have connection with some female member of the household in her sleep—the man's wife, or his sister or daughter. The man, bewitched by the *Bará'u*, does not remember the fact after he awakes; but the woman is always aware of having been interfered with in her sleep, and much valuable information as to the crimes committed by sorcerers, and even as to their identity, is supposed to be obtained in this way. As to the questions whether the *Bará'u* is invisible to the woman, and, if so, how she can recognize him, my informant could not give me satisfactory answers, though he did not on that account waver in his belief.

I wish to add that although I was not able to obtain many esoteric details with reference to the Mailu sorcery, I have had exceptionally good opportunities of grasping the general attitude of the native mind towards the question of night-terrors and sorcery, and of laying bare certain psychological features of their beliefs, which mere inquiry could not have elucidated. For some time I was staying in a disused mission house, not far from the present Mission Station. Somehow the news spread about that there were ghosts in the house, and both my cook-boy and some village boys, who used to come and sleep there, refused to continue to do so, leaving me to sleep alone. Finding this state of things convenient on account of the protection it afforded my belongings when I went with my boy to the village at night, I did not discourage the belief, nor did I betray any scepticism with regard to it. One evening, while sitting with my boy and some Mailu men, I listened to their conversation, carried out in Motu. I found that they were discussing the question of the ghosts that haunted my house. Seeing that they took the matter very seriously and expressed views extremely valuable to the ethnologist, because they exemplified the native beliefs on a concrete basis, I joined the conversation and asked their opinion and advice with regard to my case. They certainly were under the impression that I was concerned for my safety, and they gave me their *bonâ fide* view of the matter. I asserted emphatically that, as a white man, I was afraid only of ghosts, but I added that, not knowing the habits of the local evil powers, I would like to know what I had to fear and how I should best protect myself. It was these questions which elicited most of the information given above—information which had until then been withheld from me. I need not add that I was not satisfied with one conversation, but subsequently had several interviews with various informants, asking for their expert advice in my difficult position.

I was told, unanimously and emphatically, that ghosts (*Bö'i*) are absolutely innocuous; because they are like a shadow they cannot hurt. That people should fear beings with no power to hurt, my informants could not believe, indeed they seemed amused by the idea. They asserted that the ghost could not have been a *Bó'i*, because a spirit can neither talk nor make a noise, and it was a public fact that in my house some noises, as of footsteps and voices, had been heard. My men advised me, in the first place, not to sleep in the house, and if I had to remain there not to sleep alone. I remarked that nobody was likely to risk his life so lightheartedly, whereupon they warned me of the extreme folly of putting out my hurricane lamp at night, as I was known to do, which was a plain invitation to the *Bará'u* to come and do his horrible work. The most hopeful feature of the whole affair, however, was that as a white man I was to a great extent, and perhaps completely, immune from the evil attempts of even the most skilled and malicious *Bará'u*. The future has shown that my Mailu friends were right, since all the attempts of the *Bará'us* have failed, so far as concerns myself.

As in all other tribes, the *Bará'us* are considered in the Mailu tribe to be the real cause of death. Using Prof. Seligman's words:—"Except in the case of very old folk, death was not admitted to occur without some obvious cause, such as a spearthrust. Therefore when vigorous and active members of the community die it becomes necessary to explain their fate, and such deaths are firmly believed to be produced by sorcery." In Mailu a *Bará'u* from another village, always a hostile one, is suspected of having been the cause of the evil deed. There are, of course, *Bará'us* in all villages, even in Mailu, as mentioned before, though no one will openly admit it. But these, or even those from a friendly village, would never be suspected of an attempt against a Mailu citizen. To the west there were no evil sorcerers, a fact which coincides also with the generally friendly relations between those people and the Mailu. On the other hand, the eastern neighbours of the Mailu were greatly dreaded as highly maleficent sorcerers. All the villages east of *Dérebái* are simply swarming with dangerous *Bará'us*. These villages had been on hostile terms with the Mailu in the olden days, and, curiously enough, the villagers between Port Glasgow and *Gadaisiu*, in Orangerie Bay, are considered to be the most atrociously criminal and the most virulent of sorcerers. As far as it was possible to ascertain, I found that in the past these villages had not been on terms of intense hostility with the Mailu;

whereas those nearer Mailu (from *Dérebái* to Port Glasgow), which were on terms of acute hostility with the Toulon (Mailu) islanders, are considered less skilled in sorcery.

The villages most prolific in *Bará'us* are also remarkable from the ethnologist's point of view on account of their mode of disposal of the dead, which will be described in sec. 4 of this chapter. The method of discovering the culprit *Bará'u* at a man's funeral will also be treated in that section.

When there is a death in the village, the natives are always very much affected. They do not leave their houses after dark, and they sleep up in the room and not on the verandah. I was inclined to see in this the proof that the natives are, after all, afraid of the ghosts, despite the emphatic denial of the fact by the natives themselves. On further consideration, however, I am inclined to trust the direct native information. After all, the natives may be instinctively and emotionally frightened and impressed by death, but their ideas need not take the shape of fear of ghosts; seeing his work done so successfully, they may only realize the more intensely the danger of the prowling *Bará'u*. This is, however, only speculative, and further inquiry is necessary before the question can be settled. I wish to draw attention to an interesting passage in one of the works of Spencer and Gillen, which throws some light on the problem under discussion. Speaking of the Warramunga natives of North-central Australia, the authors say:—"They have a very firm belief in the existence of evil beings, who are commonly known as *Kurdaitcha*, and are supposed to prowl around with the object of killing their enemies by means of magic." "The time that immediately follows upon a death in the camp is one during which the natives are very excited and very imaginative." And at one time, when a death had recently occurred in the camp, the authors witnessed an armed party setting out to ward off the malignant sorcerers.(80)

It may be noted that the *Kurdaitcha*, like the *Bará'u*, are always living men who practise sorcery. The excitement in the camp, psychologically due, if I am right, to instinctive fear of death, reflects itself in the native mind in ideas of increased danger from prowling *Kurdaitchas*.

Spirits of the Dead.—From this somewhat theoretical digression let us turn to the beliefs of the Mailu. As pointed out above, the question whether or not the natives are afraid of the spirits of the deceased, at least immediately after death, must be left open. The burial practices with reference to the spirits of the deceased will be discussed later (sec. 4 of this chapter), but I must confess that I failed to ascertain the meaning of these practices with respect to the placation or propitiation of the ghost. In the same measure as I am confident of having grasped clearly the general outline of the native mind with reference to sorcery, I feel that I was unable to penetrate deeply into their eschatological beliefs. My experience is that direct questioning of the natives about a custom or belief never discloses their attitude of mind as thoroughly as the discussion of facts connected with the direct observation of a custom, or with a concrete occurrence, in which both parties are materially concerned.

---

(80) Spencer and Gillen, "Across Australia," vol. ii., pp. 394, 398. I am indebted to Prof. Spencer's kindness for additional information on the passages quoted. He informed me that the case described bears directly upon the question discussed in the text.

The natives use the following terms covering the connotation of the words *spirit* and *vital principle*. *Aiaigáve* is the breath, respiration, and it is considered to be the vital principle of the living man. Its seat is in the breast, and it ceases to exist at a man's death.

The "spiritual part" of a man which wanders to the nether world *(Biúla;* see sec. 4) is called *Bauegéne*. *Bó'i* is the spirit which dwells in the severed and preserved skull. It is this spirit which is invoked in all incantations *(U'úra)*, and in the formulas of protection for the *Góra* (chap. iii., sec. 5, and chap. v., sec. 2). This also is the spirit with which the family communicates when the severed head, kept by them in the house, is consulted or addressed in terms of endearment (comp. also sec. 4 of this chapter). It seems obvious from the fact that the skulls are kept in the houses, carried about and, so to say, fondled, that the *Bó'i* cannot be considered to be a dreaded being. The expression *Bó'i óre óre* (corresponding to the Motu *Diráva dika)*, which means the "spirit is bad" or angry, is very often used, but it distinctly does not imply the feeling of personal fear or awe on the part of the natives. It is an expression used to denote ill-luck pure and simple.

Karavéni; O'o.—There is a belief in maleficent female beings called *Karavéni*. These are women from the eastern villages, about *Gadaísiu* and *O'ibáda*. They are associated with shooting stars, and whenever such a star falls over a village a *Karavéni*, bent on mischief, has landed there. Whether the woman assumes the form of a star, or whether she merely travels by means of this aerial locomotion, was not clear to my native informants, nor, I must confess, to myself; but one cannot expect clearness or consistence in beliefs, whether savage or not. When a *Karavéni* enters the body of a person, this latter becomes *O'o.* Such a person, without any provocation, without being angry or sorry, simply because the *Karavéni* was inside him or her, might be guilty of any conceivable mischief. Such people in olden days would kill a man, woman, or child; they would destroy property, burn a house (which would mean the whole village as well), chop up a canoe, throw spears at a house, etc. Sometimes they would come running along to the gardens, frighten people they met on the way, return in their frenzied state to the village, and fall down exhausted. Next day they would be quite well again, as if nothing had happened. Thus I was informed by the natives about the *O'o.* As is usually the case, in the perspective of native narrative and information, things assume larger dimensions just as they are removed in time. When I asked about concrete examples of *O'o,* several cases were mentioned, amongst which one was fairly recent. A *Laruóro* woman, named *Vaila,* used to have *O'o* fits regularly. At such times she dressed up fantastically, decorating her head and body with leaves and weeds, and seizing a spear or a drum, she performed a dance of her own, of which the natives were very much afraid, but she did not commit any of the crimes attributed to the *O'o* of "olden days." It is, however, quite possible that the *O'o* were not always so harmless. There occur instances of murder done simply to give vent to a man's disturbed state of mind, these being undoubtedly related to the *amok* psychology. A case in point is the murder of his own mother by *Owáni,* a native of *Loupóm,* which occurred quite recently (mentioned above, chap. iii., sec. 5). Though the natives were doubtful whether this was a case of *O'o*—very likely there was too much white man's fuss about the matter to make it an *O'o* pure and simple—still, all agreed that an *O'o* man would behave just like that, and the *Karavéni* and *O'o* belief undoubtedly covers this region of native psychology.

2. MAGIC.

Black Magic.—The only black magic I was able to trace among the Mailu is the sorcery of the *Bará'u* described in the foregoing section. There is, as far as I could detect, no minor black magic. None is practised with the remains of food, hair and nail clippings, or with objects long associated with the human body. I saw people in Mailu carelessly throwing away the shaved off, or pulled out, hair, and I was told that nobody would be afraid of doing so, though on the mainland, especially towards *Gadaisiu,* a Mailu man would take precautions, and burn his hair clippings and throw the remains of his food into the sea.(81)

White Magic, apportioned to Individuals.—Though there was no minor black magic, there was plenty of white magic wrought among the Mailu tribe. There were two classes of it, quite distinct from the ethnologist's point of view, though I do not think the natives trouble in any way to classify their magical store. The first class can be described as the individual, private, and hereditary magic; this being a form of individual property of distinctly economic value in the eyes of the natives (comp. sec. 6 of chap. iv.). The second class is of public character, consisting of spells and practices known, if not to everybody, at least to many, and practised more or less publicly, and more or less for the general benefit. In both classes I found that economic magic—*i.e.*, magic done to advance gardening, hunting, fishing, and trading—is by far the most important, though healing ranks among the magic of the first class, and some spells, not directly economic, concerning wind and weather, are to be found among the second.

Let us describe the magic of the first class—the individual magic. This form is either entirely, or almost entirely, universal, in the sense that every grown-up man has his own monopoly in that line, one man knowing how to make bananas grow well, the other how to make coconuts thrive, or another how to make one or other kind of fishing successful, etc. Thus, while this form of magic is, in a way, universal, it is at the same time entirely specialistic. But it is not a speciality in the usual sociological sense of the word, because, as a rule, a man would not perform his magic for anybody but himself. Thus it by no means represents a professional capacity. Being at the same time private property, it is inalienable, though now the sophisticated natives would attempt to trade in magic, as will be illustrated below. This magic is transmitted, hereditarily, from father to son, and the husband always initiates his wife into his own magic. On the other hand, women never inherit magic from their fathers, except when there is no male issue in the family. It should be remarked that brothers, especially those living in one and the same house and forming one household, practise their magic in common. Thus it would be perhaps more correct to speak of household magic than of individual magic. On the other hand, as each of the brothers keeps a nominal overright to one of the formulas, allowing the other or others to use them freely, the term "individual" may be used *(cf.*, the concrete example given below).

---

(81) I know, though on this point my information is only superficial, that the inland natives practise the magic of remains. Thus, in *Abá'u* jail I watched a number of prisoners from the various inland tribes at a meal. After they had finished eating one of them took the food remains, peel, etc., mixed the whole lot carefully, and threw it away. My attention was directed to this fact by the Resident Magistrate, Mr. Armit, who also informed me that this act was a measure of precaution, for when the remains were mixed no one was able to pick out those which belonged to a hostile tribe, and perpetrate magic against him. Again, I was informed by an Ex-Resident Magistrate from the north-eastern coast that there was a sharp line of demarcation between the Papuans and Papuo-Melanesians, the latter not practising the magic of remains, while the former were addicted to that habit.

This is the sociological aspect of the individual magic. Turning now to its technical side, it possesses three essential elements—the condition of the performer, obtained by the observation of certain permanent taboos; the use in it of certain material objects, which, in Mailu, are always leaves or herbs (except in one case, to my knowledge, noted below); a magical spell, pronounced by the individual during the performance of the magic. All three elements are absolutely and equally essential for the satisfactory result of the magic. The magical substance (leaves) must be properly handled and the spell recited during this performance, and in this consists the magical act. Again, if the man dared to break his taboo *(Tóra)*, not only would his magic be ineffective, but serious illness would be his punishment. A man who ate tabooed food would suffer from an outbreak of sores all over his body, which was the universal form of punitive illness, except in the case of the dugong charm to be shortly mentioned, when swelling of the belly would be the penalty befalling the wrongdoer. The taboos observed by the various men are not a secret, and I was able to learn those of a number of men in the village. But the magical formulas and the names of the ingredients are kept absolutely secret, and I owe it to the special kindness and confidence of one of my native friends that I obtained the esoteric information concerning two magical procedures. These I shall describe, as well as another case, in which, though I did not actually obtain the intimate details, I took part in the negotiations going between my cook *Igua* and *Píkana* with reference to a powerful dugong fishing charm. In this way I obtained an insight into the way in which the natives regard the whole affair from the economic point of view.

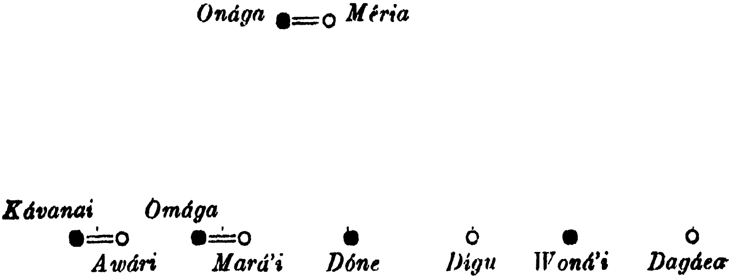
To begin with the last-mentioned case, *Píkana*, the owner (or, more correctly, *Gubína*, master) of the only dugong net in the village, is also the possessor of a dugong magic which he has inherited from his mother. His maternal grandfather had no male progeny, so he gave it to his daughter, the mother of *Píkana*, who afterwards transmitted it to her sons, *Píkana* and his younger and less energetic brother, *Máru*. The dugong net and the dugong charm are inseparable and, from the manner in which the natives looked at things, I felt convinced that the charm was by far the more important element of the two. Another net could have been easily made, but what would be the good of it—if the charm was to be kept secret? And so *Píkana* has the monopoly of the net—a monopoly which is much more a question of honour than of economic advantage. In order to be competent for his magic, *Píkana* has to observe the dugong and turtle taboo permanently, and he is thus debarred from the very privilege which his monopoly bestows on his family, his friends, and, undoubtedly, on many other villagers, since a dugong catch would afford a feast for many. I am strongly under the impression, however, that *Píkana* places immense value on his privilege or monopoly, and that he would not easily part with either of his properties —the net or the charm. And this was also the opinion of the other natives.

This reluctance would, however, apply only to the other Mailu men. When my boy, *Igua*, a Motu of *Elevála*, came to the village, *Píkana* did not hesitate to enter into negotiations with him with reference to the charm, knowing well that the Motu have plenty of dugong nets, and charms as well. *Píkana's* charm, which is said to have been imported somewhere from the west *(Domára* or *Aróma)* a few generations ago, is the only one, as I was assured by several informants, in which the magical substance consists of stones intead of herbs or leaves. *Píkana* has got three stones, which are put in contact with the net, and then a spell is uttered. One of these stones, and an incantation as well, was to be sold to my cook-boy for ten shillings, for which sum of money he applied to me one day, explaining the whole matter. I expressed my doubts whether a Mailu charm would act in *Elevála,* to which *Igua* replied by pointing to the frequent cases in which charms are brought to the Port Moresby villages from the west, where they act perfectly well. Again I tried to point out the inconvenience of not eating either dugong or turtle, and of being exposed to the terrible danger of a "big belly" should one's appetite prove stronger than one's good sense. This seemed to make a greater impression upon *Igua;* still, I think he would have purchased the charm had I not suggested that *Píkana* would be very likely to fake a spell and give him a false stone, and thus avoid the danger of having his magic spoilt, while at the same time he got money. This conviction prevailed, the *Igua* desisted from his negotiations.

The danger of spoiling the magic by letting anyone else know the formulas and the nature of the charm is clearly present in the minds of the natives. Thus, as a rule, nobody would dream of selling his magic, and indeed my other informants told me that *Píkana's* behaviour was quite incorrect and exceptional. One of these, whom, before I quite appreciated the situation, I had unwittingly pressed for details of his magic in the presence of other Mailu men, told me afterwards that, had he disclosed anything in the presence of others and had they practised his magic, his previously charmed banana crops would have been blasted by such an interference, his own magic having become quite useless. This view was afterwards confirmed by others. Thus the individual rights to a form of magic derive their importance, not only from the actual economic value of the charm, but from the fear of its being spoilt altogether by divulgation.

I shall also adduce a concrete instance of the hereditary way in which charms are transmitted, in order to illustrate the general principles laid down above.

This is the genealogy of *Omága*, one of my informants:—



The father of *Omága*, *Onága*, knew two forms of magic—a banana charm and a coconut charm. When the eldest son (*Kávanai*) had grown up, *Onága* taught him the former. He had previously taught his wife, *Méria*, how to make both charms. As *Onága* died before his other children were adult, it was the mother who imparted to *Omága* the knowledge of coconut magic, which is now his own magic. It is to be noted, however, that the two brothers, *Kávanai* and *Omága*, who live in the same house and keep a common household, have also their magic in common. *Omága* knows and recites his brother's formula when planting his bananas. *Kávanai* uses *Omága's* charm for his coconuts. Again there is a small brother left, *Woná'i*, who will be taught both formulas when he grows up. The two females of the family, *Dígu* and *Dagáea*, are not instructed in the family magic. As soon as they marry they will be taught the magical charms of their husbands. Of course, both brothers have to keep the two respective taboos *(Tóra)* if they want to practise the magic. Again, *Pikana* and his brother *Máru*, who share the same house, have the same rights to the dugong and turtle magic, and they both observe the same taboo.

Omága communicated to me the text of his incantation, as well as the magical substances and procedure, which I will give here, with certain omissions immaterial from the ethnological point of view, which will prevent the charm from being misused by divulgation among the natives through some white man. (82)

The taboo of *Omága's* own magic is a fish called *Urá'o*, which he is permanently forbidden to eat. The magical substance used by him consists of leaves of one of the native trees growing on the island, the name of which is taboo *(Góra)* to *Omága*. A coconut about to be planted, with the young leaves sprouting, is then doctored by the magical leaves, the latter being wrapped round the young sprout of the coconut (comp. planting of coconuts in sec. 1, chap iv.). Then a handful of the magical leaves is taken, and the spell is chanted into them. In a free translation, this charm runs thus:—

"Many coconuts they come out;
The blossom is breaking forth;
The fruit is swelling;
The fruit is breaking forth." (83)

After that the palm will grow very quickly and bear many fruits.

Again, the banana spell, belonging by title to *Kávanai*, but used by *Omága*, is performed in a very similar manner. The taboo to be observed with this spell also refers to a fish, called *Báe*. Leaves of a special kind of tree are also used in this magic. They are put into a bamboo, which is tied to the mother tree of the banana sucker about to be planted, and remain there over night. The next morning the man comes to the garden and digs a hole for the young plant. Holding this in his right hand and some of the leaves in the palm of the left, he chants a spell into the latter, then puts the charmed leaves into the hole and plants the banana sucker over them.

---

(82) This may seem an unnecessary precaution. Nevertheless, this pamphlet might fall into the hands of a white man passing through the district, and unscrupulous enough to divulge the charm among the natives. There is a class of white men only too eager "to put down the native superstitions." I remember myself a man boasting of having spoilt the results of a series of important magical ceremonies by publicly violating the drum taboo in an inland village. He was firmly convinced that he had thus done a great deal for the cause of the enlightenment of the natives.

(83) I am in possession of the original Mailu text, but I only give the translation for the reason just mentioned.

The leaves in the bamboo are not thrown away, but always brought back to the village and used over and over again.

The formula recited in this case seemed more obscure than the previous one. After having translated it verbally into Motu, and then into English, I made the following version:—

"Trembling (or shaking) of banana leaves, come!
Banana flowers hanging down, come.
Big fruit, come!
Many fruits, come!
All the bands of bananas, come!
Much food comes."

Whether the whole of the invocation, or part of it only, ought to be translated in the imperative I do not know, but I think it is certain that all the single words are correctly translated. It is obviously a "sympathetic" invocation, enumerating all the various things which are hoped to be obtained by the recitation of the spell. Needless to add, that if the magic is properly performed and the taboo strictly observed the banana crop is splendid.

I have been told by *Omága* and other informants that nearly all the individual magic of this description refers to economic objects, the only exception being the faculty for doctoring possessed by some men, which is also a kind of individual magic. These men also observe some taboos on that account, know certain spells, and use herbs. But I was unable to obtain any satisfactory information on the point, nor do I know whether such doctors would exert their powers on behalf of others for a remuneration, or whether, as the others do, they would keep their magic to themselves.

Magic of General Usage.—We may now refer to the other class of minor white magic—to the spells not monopolized by individual men.

Here belong in the first place the simple spells or prayers uttered on many important and critical occasions, as, for instance, when they set out on a sailing journey, or when caught by a stiff gale, during an economic enterprise, as in the arm-shell selling expedition to *Aróma*, or when fishing or hunting.

Such spells, or prayers, were always, as far as I know, accompanied by some magico-religious performances.(84)

Thus some betelnut *(Wéni)*, wild ginger root *(Aráva;* Motu, *Pópo)*, and native cinnamon bark *(Góbu)* were usually chewed and spat out. At times some manipulations were performed.

---

(84) I am trying to introduce as few theoretical preconclusions as possible, and to avoid any definite decision, whether the facts described ought to be regarded as magical or religious. Following Dr. Marett's advice in the "Notes and Queries," I will call them magico-religious.

It is very important to note that all the formulas include an appeal to a spirit *(Bó'i)*. I think that the natives never knew, nor troubled themselves, as to what spirit it was exactly. It was, however, always an ancestral spirit, and, as far as I was able to gather, the spirit of some recently dead ancestor, such as the father or grandfather of the man reciting the spell.

The spell *(U'úra)* recited when the natives go to catch fish and get sago for a small feast, runs as follows:—

"Bó'i Oo . . . útsi éboébo tsibilá'i
Spirit O! Do good to me

orebe vamá'i bilá'i oba vamai
fish make catch me shell make catch

bilá'i ganalei'á'i déma odei
me your dance because sago

vamai bilá'i gana oí'o odei déma."(85)
make me your mourning feast sago because

Which, in a free translation, would run:—

"O spirit! Make me successful in fishing! Make me successful in getting shellfish! Make me successful in making sago, because of your mortuary feast."

I was not able to ascertain in a conclusive manner whether this *U'úra* would be recited only when setting out for fishing, for making sago, for a feast, or on all occasions, but I should think the latter was the case.

Again, a pig *U'úra* was recited to me:—

"Borá'a áva máraratsíba
Pig two tame me

pitsóro dá vatseíba gána oí'o
restless not make be you funeral feast

borá'i déma vaú'i gonigoni
pig because to-day gentle (soft)

tsíba itsítsi vatseíba bó'i dá
be food make be spirit not

útsi óreóre tsíba gána unári
do evil me your mine

goníni déma."
Gentle because.

---

(85) I am indebted for this and for the following *verbatim* translations to the Rev. W. J. V. Saville.

In a free translation:—"Tame my pigs, cause them to keep still in consideration of your funeral feast pigs! Make the food (meat) to be soft to-day! Do not be angry with me, O spirit. Your mind is gentle!"

Unfortunately I failed to inform myself as to the occasions at which this *U'úra* was recited. It was, however, a general pig charm, made whenever pigs were ill or difficult to manage. Very likely it was recited, when pigs were brought to feast. The references to the funeral feast of the spirits made in this and in the preceding formula, do not mean necessarily that the pigs were brought for the man's funeral feast. It means merely that the spirit was reminded of his feast in order to pay more attention to the *U'úra*.

Again, when the men are sailing, and the sea is very rough, a charm is uttered. A man stands up, and, taking hold of the rigging with one hand and waving the billows down with the other, utters the following incantation:—

"*Oiá...*, *oiá...* (the terminal vowels being long drawn out); *lailaié...*, *lailaié; dagana tara ai loeba avavai loela kiavanai audamini biraié oaimoru moruc moru bidaaié.*"

This incantation is in the *Bónabóna* language, and I was not able to obtain a *verbatim* translation. I was told, however, that it also includes an appeal to an ancestral spirit. The incantation was recited to me in a rhythmic sing-song, the rhythm coinciding with the movements of the hand, everything expressing the calming, smoothing influence which the spell was supposed to exercise upon the waves.

When the men are sailing, and they are afraid of heavy rain, they say, holding both hands close to the mouth, with open palms and stretched fingers:—

"*Rigirigi eé...* (terminal vowels long drawn); *gareva boubou eé...*; *ibina rima de'ua reva é...*; *guiva lamunama de'ua reva é....*"

Then they say *Tfuú...* (long drawn), and spread out the arms to disperse the rain clouds. This incantation is also in the *Bónabóna* language. I was told by my informants that the men between *Gadaisiu* and *Bónabóna*, and thereabouts, are also great wind and weather experts, as they are also learned in sorcery, and also that the Mailu men never learn, or purchase, these charms from them. All of these were, as stated above, uttered with chewing and spitting of betel, ginger root, and cinnamon.

There are also some incantations against snake bite. Mr. Greenaway knew a specialist at *Dedéle* Point who used to utter some spell over a stone and then throw it into the grass, which was said to prevent snakes from biting.

The *Marivana de'ue reva*, or charm, for causing the armshells to be well sold, has been mentioned in sec. 4 of the preceding chapter (see pl. xxxviii., figs. 1 and 2).

There is a magical ceremony performed in connection with the big nets *(Ume gaúma)* (comp. sec. 3, chap. iv.). A number of people go to some place on the barrier reef—usually to the part called *Arié'u* (north-western end of island). Two men hold a pole (made of the *Ana* tree), round which one end of the *Gaúma* is tied. A third man comes and strikes the *Ana* with another stick *(Laúna)*, and says:—

Orebe vamá'i bagiá'i
Fish cause to come here

gaumára guguovói'a tsáde
the net we get down

Boi do tseíba órebe míni gabiá'i
Spirit not comes fish give here

Orebe vamá'i bagiá'i
Fish cause to come here

A'a'ma vatóra óde
Water is taken

Mari dadamaná'i vatséna óde
Village inmates are glad

Eu vagogo óde.
The firewood is cut

This translation (which I obtained through Motu) may be rendered in a free version:—

"O spirit, cause the fish to come! The net has been sunk; (angry) spirit keep away; let fish come to us; the water is ready (for boiling) and so is the firewood; the villagers are glad (hoping to get a good catch)."

Here again the natives were emphatic that this incantation is directed towards a spirit in order to appease the angry spirit and to make him favourable.

This charm is connected with divination. After the incantation has been uttered, they watch the *Ana* pole, which supports the net and is held by two men. If it moves the spirits are well disposed. If the *Ana* does not stir the fishing is not undertaken, and the men return to the village. This custom is known in the *Bónabóna* and *Suá'u* villages.

The magical practices, made in preparation for a feast, and described in the next section, also belong to the same class of magic as the spells just mentioned.

3. THE FEAST (*Madúna*).

Sociological Importance of the Feast.—It has been necessary to make mention several times of the great annual feast of the Mailu, as it is associated with so many aspects of native life. It has also been stated that the feast forms a central feature in the social and mental life of the natives. In this respect the Mailu do not differ from the other Western Papuo-Melanesians of the south coast, and, as far as I was able to ascertain, from the inland people.(86)

By the expression that the feast is a *central feature* in the native social life, I wish to indicate that it occupies a great part of the activities of the native, both economic and social; that it is the main object, or, rather, the culminating point in his life's interest, and that it is a mainstay of the native's social organization. At the feast and during the feasting season there is an enormous display of all that the Papuan native really cherishes—drums, ornaments, dancing, fighting, women, and, above all, pigs. Again, the feast and its preparatory stages are connected, as was shown above, with marriage and sexual life, with trading (on Mailu Island), and with agricultural activities (making of sago and making of gardens on the mainland). Certain forms of *Góra*, or taboo, are exclusively practised in connection with the feast. Again, as was stated in chap. ii., sec. 3, the organization of the clan is strictly connected with the feast; the main characteristic differentiating the clan from the subclan being that the former was a feast clan, *Madúna dúbu*. These features will appear still more clearly in the course of the following description. In order to see the native life in the right perspective it is essential to realize this paramount social importance of the feast, as well as to realize that for the native the feast is one of his main objects of life—one of those things that "keep him going," that make life worth living for him.

---

(86) *Cf.* C. G. Seligman, *op. cit.*, chap. xii., where the *Koita* feast (called *Tabu*) is described. Prof. Seligman states also that the big annual feast plays an extremely important *rôle* among the *Sinaughólo*, who live inland from *Gábugábu*, some 30 miles east of Port Moresby. The *Sinaughólo* and kindred peoples stretch as far east as inland of Cloudy Bay. In Cloudy Bay I had the opportunity of talking with a native of *Kevéri* valley, in the main range, who told me that in their tribe there is an annual feast of much the same kind as among the coastal Mailu. Again going east, festive ceremonies of the same type were stated to exist among the *Udáma*, inland of Amazon Bay and Port Glasgow, and among the tribes living inland of Orangerie Bay. At the big *Sói* feasts I witnessed, among the Southern Massim between Farm Bay and Mullins Harbour, the inland people, belonging to a non-Massim stock (the *Borowai*, *Magawaru*, etc.), performed a big *Raú'a* dance. And it was said that they know more about the sacred dances, *Góvi*, *Ráu'a*, and *Kóbiai*, than the coastal people of that district.

The description of the proceedings at, and the preparation for, the feast given in this section, is not all of the same degree of accuracy. Certain ceremonies and parts of the preparations I have seen, but unfortunately I was not able to witness the main feast in Mailu; and this makes the whole difference in the description of ceremonial proceedings, for even the best native informants are essentially unable to give any consecutive details, and the detailed information of the white man on such a subject is completely worthless as long as he has not observed the facts for the purpose of study. This, I venture to say, is only possible for a trained observer. I have witnessed the most important preparatory feast in *Kurére* (Mailu district), and I have seen the whole series of preparations in Mailu village and different stages of it in several places on the mainland. I have also witnessed two big *Só'i* feasts in *Isudá'u* and *Tsílotsílo*, and one in *Nawuápu* in its last stages of preparation. Though the *Só'i* differs from the *Madúna* on many essential points, I was able to trace both the similarities and differences, having several Mailu boys with me. In this way I received a much clearer and more concrete impression of the Mailu feast than I would have been able to obtain from mere narrations. In the course of my account I shall carefully point out all the deficiencies in my information and shall also indicate what I consider to be well established.

The feast is usually called *Madúna*, which means *distribution*, the allusion being to the distribution of food which forms an essential feature of the proceedings. The word *Maúru*, or *wealth*, is also used at times to denote the big feast. The smaller preparatory feasts are generally called *Kanáre* or *Gátsi*, each having besides its own specific name. *Oi'o* is the name of a mortuary feast, which will be described in the next section.

Connection between a Feast and the Dance performed at this Feast.—The whole character of the feast, especially in its magico-religious aspect, depends upon the dance, which is performed at its main phase. The most sacred and appropriate dance, and that invariably performed when an important *Madúna* takes place, is the *Góvi*. For this dance the great ceremonial platform is created, on which it is performed, and with this dance are connected the taboos and magical practices, called *Udíni*. Again, this dance, and this dance only, entails a series of preparatory feasts. The decoration of the houses also varies when the *Góvi* is given.

Much less ceremony and taboo are associated with the dances *Raúa* and *Kóbiai*. These two imply certain taboos on the part of the master of the feast. He, and perhaps two or three other men, who act as his associates, abstain from boiled food, fish, and fresh water, eating only roasted food and drinking the fluid of roasted green coconut. The same holds good with reference to the *Tsélo* dance, which seems, however, to be of more recent introduction and less often performed than the two just mentioned.

Practically at all the feasts the women perform their own dance—the *Damoréa*—whatever others there may be. All the women who are to take part in the performance are required to observe the same taboos as the master and his assistants; there is also the curious observance previously mentioned (chap. iii., sec. 3)—*viz.*, the drinking of salt water by all those men and women who observe the taboos.

The name for the taboo, and for the tabooed people, is, in the case of *Ráua*, *Kóbiai*, *Tsélo*, and *Damoréa*, *Gábugábu*, which corresponds to *Udíni* in the case of the *Góri*. But the fasting does not begin with any feast, as is the case in *Udíni;* the *Gábugábu* people have a good drink of salt water after the sago is brought home and the houses have been decorated with the big sago sausages, and henceforward they observe the taboo.(87)

Again, when the *Bára* is danced there is no taboo whatsoever, no preliminary feasts, no observances of a magico-religious character. I have reason to believe that this dance has been introduced comparatively recently from the west; it originates from *Kerepúnu*, and from other tribes round Hood Bay, and has made its way, in recent times, eastwards as far as Mailu and westwards to the *Sinaughólo*, where I had the pleasure of meeting its pioneer and introducer into the tribe, the Motu and *Koita*. It is a lively and varied dance, accompanied by extremely poor and uninteresting music, and, in spite of its apparent variety, it is to the European critic both decidedly monotonous and greatly inferior to the other dances. But it is at present immensely popular with the natives, being much preferred to any other dance; in fact, one may say that it is the fashion in Papua nowadays.

Changes in Village Life when the Feast approaches.—Whatever dance is performed, and whatever may be the differences in the preliminary stages of the feast, they are in all cases accompanied by an immediate and general quickening and brightening of the village life. The men, who rehearse the dance every evening, when they are not away on food gathering or trading expeditions, decorate themselves more and more sumptuously and completely. Their numbers increase, the older men gradually joining in. Drums are hung on the front parts of the verandahs, and so are arm-shells, necklaces of *Sapisapi* and of other shell discs, with pendants of boars' tusks, large shell discs, and plates inset with Jequirity (the "*Musikáka*" of the Central Division). These ornaments appear on the dancers during the performance. It is to be noted that when the *Góvi* is performed the drums are hung in the house of the headman of the clan, who is also the master of the feast. The houses are also decorated with streamers of dry pandanus, twigs and palm-leaf ornaments, which at certain dances are stuck into the belt and armlets. When the *Góvi* is danced, the *Od'u* leaves, which are also used in the *Udíni* magic (see below), are used to decorate the houses.

---

(87) All these dances have been introduced from the east—the more sacred ones from the inland tribes of Orangerie Bay and Mullins Harbour, the less sacred (*Tsélo* and *Damoréa*) from the coastal Southern Massim. For the description and general characteristics of these dances, as well as of the others, see next chapter, sec. 1.

A very characteristic feature of the approaching feast is the display of food, in which the houses of the headmen of all the subclans are hung with sausages of sago. In the case of a big *Madúna* this decoration is put up as many as four to six months beforehand. Thus I saw the houses in *Kurére*, where a big feast was about to take place some time in March, decorated with sago in October. The sago, as packed and prepared in the Mailu district, goes bad in about four weeks, and the packages fall to pieces in two months or so; thus, as the final display ought to be edible, the decoration has to be renewed three or four times, with the result that immense quantities of valuable food are wasted. In Mailu village, where the feast in February, 1915, was to be a very small one, the sago appeared at the beginning of January, and would have to be replaced once only—or even the half-rotten material might be distributed. A short time before the feast, the bananas are hung up in long rows in front of the houses of the clan, or clans, giving the feast. As the bananas are very perishable in the hot tropical atmosphere, many of them rot before being used, as I have myself seen in Mailu.

This wasteful display of sago and bananas is parallel to the accumulation and partial waste of coconuts connected with the various coconut taboos *(Góra)* described in chap. iii., sec. 5. The coconuts are brought together in the palm groves, and arranged in neat rectangular figures under the coconut trees, covering the ground at times for a couple of square metres. Before their time comes many of the nuts have sprouted to an extent that they are no longer edible, and the waste consequently, in the opinion of the Rev. W. J. V. Saville, is quite considerable.

Again, the display of pigs during the feast corresponds also to the same psychological attitude of the natives.

The quickening of life in the village is manifested also by the increase in the intensity of sex life (*cf.* sec. 3 of chap. iii.) and by the frequency of small feasts, of a more or less private character, which are in preference held at that time (comp. what has been said about small feasts preliminary to marriage, chap. iii., sec. 3, and during the initiation ceremony, chap. iii., sec. 4). During the last few weeks before the advent of the feast one frequently sees men boiling sago and preparing coconut cream, and groups of women unusually busy at cooking, etc.

Series of Minor Feasts and Preparations for a Góvi Madúna.—These general remarks will furnish the broad background to the details which follow, and they will enable the reader to sift from the account the features common to all feasts from those peculiar to the *Góvi madúna.* The latter is by far the most important in the native's own eyes and in that of the ethnologist. It has, therefore, been chosen as the subject of the following description. The other forms of *Madúna* can be easily realized by the reader by the suppression of specific details.

As mentioned in the paragraph on taboos (chap. iii. sec. 5), the coconut *Góras*, and especially the specific festive *Góra*, the *Tóna góra*, are erected a long time before the feast begins, and, as far as I know, this is the first step in the series of preparations for the feast. When the coconuts are tabooed in virtue of death—*i.e.*, when they are *Nebúru*—the state of things is to be considered as preliminary to a feast.(88)

The real preparations and the series of preliminary feasts begin with the *Kanáre* or *Gátsi* (small feast), called *Maúru amáta.* It is held at the beginning of the *Aurári* season (midwinter); that is, roughly, about six months before the main feast will be given.(89)

At this the *Damoréa* is danced, as, in fact, it is danced at practically all the smaller feasts. Women only take part in it, and they are decorated with strings of shell discs and wave, as they would wave a fan, the *Eláki*, or folded mat of pandanus leaves.(90) The dance begins, as is always the case at a small feast, in the afternoon (*Valavítsa*) and is continued till daybreak, and at daybreak several pigs, to the number of twenty or thirty, are killed. If there is a big *Madúna* in preparation they are carved on the verandah of the house of the *Madúna* master (*Madúna gubína*), and the meat distributed amongst those present, each *Dúbu* or subclan of the villages which had been invited receiving its share. After this distribution the men of the clan giving the feast bring some stones and pile them in front of the master's house. This is one of the preliminary signs that a *Góvi* feast is about to be held, and the erection of the heap of stones seems to be the main ceremonial function of the *Maúru amáta* in the series of preparatory feasts. But as I have not witnessed this feast my information may be defective, though I observed the heap of stones in front of the *Madúna gubína's* house, close to *Móto góra.*

---

(88) Of the connection between the ordinary feast and the mortuary feasts I failed to obtain a clear idea. The little I know will be said in the next paragraph.

(89) For the description of the native seasons see chap. iii., sec. 2.

This latter sign (*Móto góra*); comp. chap. iii., sec. 5) is erected at another small feast, called *Móto bádi*, held at the end of the *Aurári*—in the *Viníu* season. At this feast the men come dancing into the village from the bush. They perform a dance identical with that danced during the feast coming next in the series. As it was in this latter connection that I saw it I shall describe it presently. They also sing the same song and, as the whole proceedings are identical, they very probably bring something—some leaves used in the construction of the *Móto góra*—to the village; but, unfortunately, I did not press that point, and my informants might very probably have omitted one of the details of the feast. At any rate, the most important ceremonial *rôle* of this feast is the erection of the small gallows, ornamented with the large white shell called by the natives *Móto* (*Ovulum ovum*). This is a sign that the *Góvi* dance will be performed at the *Madúna*. As previously stated (chap. iii., sec. 5), this *Móto góra* is also a token that as many pigs are already pledged for the feast as there are shells on the *Góra*, each shell representing one pig promised by a man to the *Madúna gubína* (master of the feast).

Whilst they erect the *Móto góra* they sing the following incantation: —

Dári *apua'i*
dog bite

Borá'a *apua'i*
pig bite

---

(90) In Mailu district women do not use the ceremonial stone axes, which are an essential accessory of the *Damoréa* further east, among the Massim of the southern coast.

Nára ónima apua'i
a kind of shellfish bite
Dá'i ónima apua'i
another kind of shellfish bite
Bóia ónima apua'i
mother of pearl shell bite
A'i'a ónima apua'i
shell bite
Apu gáru rua'i
bite then shake
Apu góra e'a'i
Tfe!! Tfe!! Tfe!!

It was stated that the object of this spell was to make people from other villages bring much food and many pigs to the feast. The significance of the individual words was obtained by making the natives translate them into Motu and so into English. It is impossible, however, to interpret them into any meaning, and especially into that given by the natives. As this, however, is the normal state of things with reference to customary spells, incantations, and songs, there is no reason to dismiss any part of the information as spurious. At any rate, several natives were, independently, quite emphatic that the ultimate aim of the incantation is to increase the pig supply. Possibly the incantation invokes some calamities on those who would not keep their pledges.

After this comes the *Oílobo* feast, apparently the most important preliminary one, which certainly contains the greatest amount of magico-religious element, and probably even more than the main feast. It marks the beginning of the fasting or *Udíni* period, and is held some two months before the main feast. The *Oílobo* I saw at *Kurére* was held just before Christmas—*i.e.*, at the very end of the *Lióro*, or the beginning of the *Avára kívonai* season—and the main feast was, both according to the natives and to my own calculations, to be held at the end of February or the beginning of March. This feast also is called *Boróa evauré*, *Boróa* meaning mango. In the morning of the feast-day a dance called *Laíge* is performed in the village, both men and women taking part in it. The women hold the previously mentioned *Eláki* in their hands, the men beat the drums and blow the conch shells while dancing. The ceremonial part of the feast takes place in the afternoon, during *Valavítsa* hours; the men dress ceremonially and go out into the bush. Their decoration includes, in the first place, the ceremonial blackening incidental to all strict taboos, as well as to mourning. This blackening is done by the master (or masters, if more than one clan is giving a feast) of the *Madúna* and by several other men, who play a part in the feast arrangements and who join, at least partially, in the fasting. These men also have their heads well decorated with feathers and ornaments of boars' tusks, shell plates, etc., suspended from a shell-disc necklace. All the other men taking part in the ceremony are also decorated, but less profusely, and none of them are blackened. They all wear armlets and anklets of dry pandanus strips, a sign that they take an active part in the performance. These men bring back from the bush the mango saplings and the *O'á'u* creepers, which form part of the pig magic. They come in state, forming a procession, which is headed by a man blowing the conch *(Bogígi)* made of a *Triton* shell. He is followed on both sides by two men, also with conch shells. Behind this triangle are brought the mango saplings, as many of them as there are clans performing the *Góvi* dance, or what comes to the same thing, as many as the platforms that are to be erected. The saplings are carried by assistants of the *Madúna* masters, who take part in the *Udíni* taboo. From the top of each there descend two streamers of the *O'á'u* creeper, the free ends of the latter being held by men. The master, or masters, of the feast *(Madúna gubína)* follow the mangoes, each walking behind the bearer of his sapling. In the feast I witnessed there were two saplings and two *Gubínas* following, as two clans were to perform the *Góvi* dance at the feast.

This group is followed by a number of men with drums, who all sing and dance to the beats. Both song and dance are, as is always the case, called by the same name, *Boróa evauré Laige*—*Boróa* meaning mango. The song runs:—

"*Lá'upa'ápa aí gurí*
The pole on the platform it falls
Arau'oí oí rei'ó
Modíri báitsi avaná
mango mango
Arau'oí oí rei'ó
Aílopulopo aí gurí
Tree on platform it falls
Arau'oí oí rei'ó
Modíri tsáui tsaúió
mango
Gisóa tsaúe tsaúoi."

This song undoubtedly refers to the mango pole erected on the *Góvi* platform; but the mango saplings which were then being carried were not placed on the platform, and I could not get any information as to the reason why this song is sung at that time. As it is, however, sung during a previous feast (*Maúru amáta*, see above), there seems to be no doubt that it is a ceremonial song of special importance, and that it points to the great part played by the mango in the feast, though this part, in Mailu at least, seems to be distinctly of the nature of a survival.(91)

There is a characteristic and somewhat wild dance, to the accompaniment of the song and drums, in which they take long, elastic strides, leaping from one foot to another. At times they bend the knees and body and dance in an almost squatting position, in which position they look rather demoniacal. Again, at times the chiefs get in front of the mango trees, turn round, and dance backwards, looking up to the mangoes—a movement which, to the observer, seems to express a kind of adoration of the plants.

The song ceases for a short time, and the men dance to the rhythmic beat of the drums. Then the foremost men blow the conch shells and all the others join in a long-drawn O—o—o— in tune with the shells, the two sounds blending perfectly. Then the song is resumed.

Thus, singing and dancing, the men enter the village, where they are met by a group of women, decorated with diadems of white cockatoo feathers, and with necklets of shell discs, in the form of the *Bági* and *Samarúpa* of the east end.(92) The women dance and wave at the men ceremonially with folded pandanus mats and pieces of native bark cloth (I also saw a few pieces of calico), which action is called *Tagábu*. The women wait until the men join them, then they dance backwards, and the whole *cortège* thus enters the street and comes right in front of the house of the most important *Madúna* masters.

---

(91) For the benefit of those readers who have never done ethnographical field work, I may add that it is in almost all cases quite impossible to obtain from the natives the direct meaning of, or the reason for, a song or incantation. The answer is always, "Old custom, handed down by our fathers." Again the literal translation of a song is very often impossible. Natives use obsolete words and phrases; some words here and there are translated, and these serve to the ethnologist as the clue to the general meaning of the incantation. Compare, for instance, the songs of the Central and Northern Australian aborigines given by Spencer and Gillen. The claims of the German missionary Strehlow, who gives full and extremely consistent translations of songs that the originators were unable to translate, must, as far as my own experience goes, be received with some reserve. Natives who have been long under the white man's training, as Strehlow's mission boys undoubtedly were, possess a wonderful ability of adapting the incongruities of traditional custom and belief to the necessities of an untrained, and hence too consistent a, white man. In Mailu there is the additional reason for allowing for a certain margin of obscurity and ignorance on the part of the natives, as the *Góvi* dance and the connected ceremonies are undoubtedly introduced from abroad (see below, chap. vi., sec. 1).

(92) Figured on pl. lx. in Prof. Seligman's treatise.

Two of the large pandanus mats *(Eba)* are next spread in the middle of the street, and all the men participating in the ceremony squat down. The innermost circle is formed by the two masters of the feast and by the bearers of the mango poles and of the *O'ă'u* creepers, as well as by the old men of the village. This is the preparation for the cutting up of the mango saplings, *Boróa pétapéta.* It begins by a ceremonial eating of betelnut, accompanied by a betelnut incantation *(Wéni u'úra).* Same betelnut is produced, and small parts of it are distributed in an earnest and solemn manner. The men, holding the pieces of nut in their hand and looking at them carefully and, one might say, tenderly, and swaying their bodies rhythmically, sing the following song. After they have finished it they eat the nut slowly.

1. *Rogéa* *bedána* *bédasoní* *toninamó*
(Island of Rogea) betelnut licking the lime spatula
Bedaió *aitserí*
betelnut cut into pieces
Tsabúbu *A-a-a*... (long drawn)
shake him

2. *Mairára* *bedána* *bédasoní*
(the locality of *Mairára*, in Milne Bay)
(Continued as above.)

3. *Durubi* *bedána*, etc.

Thus several localities, all from the extreme eastern end of New Guinea, are mentioned, and then the song ends with the last stanza:—

Taukuripokapoka *amubé da*
(personal name) you betelnut
Bedaió *aitseri* *tsabúbu*
betelnut cut into pieces shake
Aitseri
cut into pieces
Kumakarakedakeda *amubé da*
(personal name)
Bedaió *aitserí* *tsabúbu*
Aitserí

This song is addressed to the two legendary men, provided with the somewhat long names of Kumakarakedakeda and

Taukuripokapoka, who have claims to the first introduction of betelnut. They lived in *Maivára* (a community in Milne Bay, at the eastern end of New Guinea). At that time there was no betelnut in the country. Then Kumakarakedakeda and Taukuripokapoka made a big feast, for which all the villages assembled. They gave betelnut to every village, and are the patrons of this article.

The song is intended to please these two legendary persons, and at the same time to make the nut plentiful. It is essential that it should be eaten during the performance. The natives were, as is usually the case, somewhat vacillating in giving the *why* of the custom. But the song is obviously a betelnut incantation, and all my informants were agreed that, should the ceremony be omitted, the nuts would suffer.

After the betelnut ceremony is finished there comes the ceremonial cutting of the mango saplings, called *Boróa gábigábi*, in which they sing a song referring to the cutting of the mango. During this performance two men take the two young mango trees in one hand, and small axes (iron ones in the performance I saw) in the other, and at each phase of the song they mark the sapling with an axe cut. As the singing goes on—the same phrases being repeated over and over again, as is usual in native songs—the performers increase the energy of the blows. After the song is finished they cut the mango stakes into pieces about 30 cm. long. These, together with the *O'á'u* creepers, are wrapped in the mats on which the performance took place, and in this way form the pig charm, the use of which will be described directly. The song, as well as the cutting of the mangoes and the wrapping of the pieces in the mats, is called *Oílobo*, which name is equally applied to the whole feast.

The song, of which I unfortunately failed to obtain the translation, runs as follows:—

1. *Oiauguro baiwa ewaiogodo baiwa*
2. *Ewaoi gera gerai a-a-a*... (long drawn)
3. *Ewaoi dagóbe a-a-a*... (long drawn)
4. *Oiau gisoa boi guri*
5. *Oiau modiriva modiri auea*
6. *Eoiguri a-a-a*... (long drawn)

The numbers indicate the single phrases, which form distinct musical units in the singing. The song contains allusions to the mango *(Gisóa, Modíri)*.

During the singing of this song, as of all those previously quoted, one old man took the lead. He was not one of the masters of the feast, and I was told afterwards that he was the greatest authority on the subject in the village. In the ceremonial songs the men look at each other, sing with much deliberation, and have the air of acting under a kind of inspiration to improve the song. The tune of all those I heard, as well as of the incantation in arm-shell magic that I heard performed on another occasion (see sec. 2 of this chapter), is identical, and, as compared with the tunes of some dancing songs, is strikingly melodious. It ascends in the scale within an interval approaching about a small terce or augmented second, and then descends again. The whole proceedings are very serious and solemn, but there is nothing esoteric about them. Both women and children of the whole village look on, though, prompted by their *savoir faire*, they keep at a distance from the circle of men, squatting round the mat. But although not esoteric, the ceremony is nevertheless extremely serious and important in the eyes of the natives, and not to be in any way lightly treated. As it was performed late in the afternoon I was unable to take any snapshots. I offered the natives exorbitant prices (six sticks of tobacco to each of the chief actors and three to all the others) if they would rehearse the performance next morning. I tried also to exert a certain pressure through the village constable, but all in vain. The natives did not want to profane the ceremony and risk the evil results of trifling with a magical performance.

After this there begins the fasting and general taboo on the part of those who are going to play any *rôle* in the subsequent dance and feast. As mentioned above, the general taboo—*i.e.*, abstention from boiled food, fish, and fresh water, as well as the drinking of salt water from time to time—is observed by both men and women; that is to say, by all the men who will dance and assist the master at the feast, and by all the women who will play a certain ceremonial part (such as that played in the dancing to receive the men during the *Kanáre*), and by those who will dance the *Damoréa*. A specially strict taboo, called *Udíni*, which is also connected with the feast magic, is undergone by the master of the feast and a few of his nearest assistants. Thus at the *Madúna* in *Kurére*, the *Udíni* was undergone by the two masters of the clans which danced the *Góvi* (the third clan, as mentioned before, danced the *Bára)*; also by two men called *Bordá'a eva mini*, which means givers of pigs. These men carried the two mango saplings and cut them up at the *Oilobo*. At the main feast they will help in carrying out the distribution of pigs. All these men are called *Udíni* men *(Udíni égi)*. These, besides observing the above-mentioned food taboos—and that certainly much more strictly than the other fasters—blacken their bodies all over; they have to practice complete sexual abstention, and they sleep in a special place, called

Varatséva. In former days, when the *Dúbus* were in existence, the *Udíni* men slept in these; nowadays they sleep in the upper thatched apartment of a house (comp. description of house, chap. ii., sec. 4). In this room there is a corner set apart, and it is *Góra* (tabooed), nobody being allowed to enter it.(93)

The most important element in the arrangement of the *Varatséva* is the folded mat *(Eba)* containing the cut-up mango and the *O'á'u* creepers. Besides these, some additional leaves, possessing magic properties, are usually inserted. Of such a nature are the leaves of a fruit-bearing tree *Gaméla*, of a large tree called *I'o*, and some aromatic herbs, called *Gáu*. All these plants were emphatically affirmed to be *Borá'a iápa*—pig charm. The *Madúna* master sleeps on the mats. I was not able to ascertain for certain whether, or how, the articles of native wealth are displayed in the *Varatséva* place, though I was informed that it was decorated with native ornaments. The three analogous arrangements that I saw in the Southern Massim district, where the taboo arrangements (called there *Sobó'i'o)* are almost identical with those of the Mailu, were all richly decorated, or, rather, hung over with all sorts of native jewellery (arm-shells, strings of shell discs, ceremonial stone axes, etc.).

It is clearly and unanimously understood that the whole *Udíni* proceedings are a charm for attracting pigs to the feast. Now, pigs are at the present time reared in all the villages and brought to the feast, so that it would seem as if the magic ought to be supposed by the natives to act upon the owners of the pig, rather than directly upon the animals themselves. Careful inquiry, however, proved that this is not the case. The charm is a pig charm, ensuring that plenty of pigs shall be brought to the feast. The questions as to the *modus operandi* of the charm were dismissed as useless sophistications. Again, a native in the course of discussion pointed out to me on his own initiative that some pigs in the coastal villages are practically living in the bush, and that they have to be caught by their owner before they are brought to the feast. This informant simply hinted that things are not so simple as I implied, but he refused to draw any conclusion. It is, therefore, clear that the natives universally believe that the *Udíni* magic will secure plenty of pigs, and hence a brilliant feast, but they do not try to imagine how the magic is acting.

---

(93) While I was visiting *Nawádu*, in Farm Bay (in the *Suá'u* district of the Southern Massim), I inspected a recently-built house in which the master of an approaching feast used to sleep. The natives did not like my entering it, and whilst I approached one corner which was partitioned off with a plaited coconut mat and decorated with arm-shells and *Bágí* (heavy necklaces of ground-shell discs), I was earnestly requested to keep away. I did not know at that time the *Udíni* customs, and I was not aware that the corner was tabooed.

The Main Feast.—As already stated, I have witnessed the main feast in the Mailu district, though my ideas were greatly helped by the observation of the big feasts in the *Bónabóna* district. I am also convinced from what I saw and heard that the main magico-religious elements are contained in the events above described—that is, in the preliminary feasts, preparations, and taboos. There is obviously less *belief* embodied in the practices of the feast itself. (94) The *Sói* feasts which I saw, and which were undoubtedly identical with the *Madúna* in the main outlines, had much less of the character of a silent and concentrated feast than the *Oilobo* which I saw in *Kurére.*

As mentioned in a previous paragraph (chap. iv., sec. 4), the natives of Mailu Island, in anticipation of the final feast, go on expeditions to *Aróma* in order to bring back pigs, and shortly after their return the feast takes place. The last days are spent in collecting as many vegetables, coconuts and other fruits as possible. Word has previously been sent round fixing approximately the date of the *Madúna,* and great numbers of natives arrive from various villages. Those living at the greatest distances—even in olden days people used to come from as far as *Bónabóna* and the Massim villages beyond—usually arrive the earliest, as they want to make sure that they will not miss the feast. For those at hand this margin is not necessary. In the Massim district I witnessed both the arrival of a large number of native canoes for a feast and the departure of some, and both events were picturesque and impressive. When the natives leave their village for a feast they blow the conch shell and shout loudly to announce the event. The pig, suspended from a pole by its bound feet, is carried in a procession and put on board the canoe.

When the feast is imminent the canoes assemble, the whole horizon being dotted with crab-claw sails, with the oval sails of the east, and with small dug-outs propelled by paddles or small mast sails. The long-drawn, penetrating wail of the conch shell reverberates over the water, and is periodically interspersed with the wild scream, thrice repeated, with which the natives wind up the music of the shell. The voices from the sea are answered from the bush, and the sound of parties coming from a distance, with the weird O-o-o! of the shell and the shrill Iii! Iii...! Iii......! of the excited men, growing more and more distinct as they approach, is singularly impressive.

---

(94) These remarks are, of course, only statements of fact. How far the feast is to be regarded as a mere social revelry, as a magical ceremony, or else as a religious ceremony, is a theoretical question, which it is not necessary to discuss in this place. I need scarcely add that in this question, as in many others, I have tried to be as unbiassed as is possible for an ethnologist, though, of course, having theoretical problems constantly in mind I tried to read in every fact an answer to a general query, which does not necessarily mean "the confirmation of a preconceived idea."

When they arrive the various parties camp in groups, usually associating fairly well according to their geographical distribution. Notwithstanding the ceremonial peace which should prevail during a feast, the natives seem in olden days to have been always on the alert and very apprehensive of possible contingencies, and I believe with good reasons. After all were assembled the feast began. If I may conjecture from what I saw during a *Sói* feast and from what I was told by the natives, the first proceeding would be some dance not of a ceremonial character, such as the *Damoréa* of the women and the *Tsélo* or *Daúge* of the men. After that the great ceremonial dance— which in a solemn *Madúna* is always the *Góvi* — would take place, and on the next day the slaughtering of the pigs and distribution of the food. But as I never witnessed a feast it will be safer for me not to attempt a detailed account, but to confine myself to the enumeration of its essential elements.

1. *Ceremonial Elements.*—The feast is the climax and the object of the fast and of the magical practices embraced by the native term *Udíni*. The *Udíni* is formally brought to a close at the feast by the *Udíni* men washing in the sea and partaking of food. The *Góvi* dance is also a ceremony in itself, but unfortunately I was not able to obtain any details on this point.(95)

2. *Dancing*—Besides the ceremonial dance, others are performed; I am inclined also, to think that, whatever it be, the principal ceremonial dance may, after it has been danced for a short time, degenerate into a mere pleasure dance. The distinction between the two is based upon the fact that the former is performed by men specially prepared, who would have been subject to some taboos. As far as I was able to ascertain, the *Góvi* is not danced by the master or by any of the *Udíni* men. The non-ceremonial dances would be performed by both sexes, while the ceremonial *Góvi* would, in Mailu, be danced by men only.(96) At the dances in which both sexes take part there is undoubtedly a strongly erotic element, as mentioned above in sec. 3 of chap. iii.

---

(95) In Mailu the *Góvi* is an introduced dance. I hope to be able to obtain some more precise information concerning it by the study of the natives inland of Mullins Harbour.

(96) Though, according to Prof. Seligman's and the Rev. H. Newton's descriptions, the same dance is, in the Massim district, performed by men and women.

3. *Distribution of Food.*—This takes place after the dance, usually on another day. It is, as far as the interest of the native goes, undoubtedly the most important part of the feast. The food (sago and bananas), as already mentioned, is displayed even at the preparatory stages of the feast, and the pigs form the general topic of discussion, comparison, admiration, and boasting. Groups of men and women stand for hours round the rows of these animals, which, living and bound, with their feet lacerated by the cruel mode of transport, and bleeding freely from the wounds, lie in a pitiful condition. To prevent their untimely death, the owners sprinkle them with water. I saw all this at the *Sói* feasts, and as Motu was the language spoken between some of my boys and the villagers I could follow parts of the conversation. The above broad features are, of course, common to the tribes I observed as well as to the Mailu.

The display of food is further augmented by the piling up of vegetable food in the street, in front of the houses of the feast-giving clan, immediately before the distribution, every man contributing his own share. The coconuts, sago, taitu, yams, taro, and bananas are, in that order, piled in heaps upon the ground.

The pigs are killed on platforms, erected on the bush side of the village, and both their flesh and the other food are distributed amongst those present, the *Madúna* master calling out the names of the clans which are to receive their respective shares.

These are, so far as I was able to ascertain, the principal features of the main feast, and in spite of the imperfection of my account I do not think that any matter of importance has been omitted. There are, however, some general remarks still to be made. As previously mentioned, the food aspect of the feast is extremely important to the natives. Whenever I discussed the subject with a new informant, and asked him what the feast was and how it was conducted, I usually got the long *ménus*, in which marked enthusiasm was shown in respect to the beauty of such a collection of fine, large fat pigs from *Aróma*. The natives would also speak of all the toils that must be undergone in order to procure the cherished pigs and the sago. Again, when, with a number of Mailu boys and with *Igua*, my Motuan valet, I was watching the *Sói* feasts in *Tsílotsílo* and *Isudáu*, my companions were indignantly contemptuous of their poverty and plainness, and when pressed to justify their criticism, they pointed out that the quantity of pigs and of other food killed and cooked and given away was ridiculously small. "In Mailu," they said, "the feast is beautiful, lots of pigs are killed and distributed."

case, I learned that the original owner of the pig sent it direct to the master of the feast, whilst the other party maintained that it ought to have been given to him.

On a second occasion the quarrel broke out over a curious custom. When the men bring the pig, carrying it on a long pole, to present it to the master of the feast or to one of the submasters (in the Massim area, where this occurred, there are secondary masters at each feast, though in the Mailu district there are no such persons), they run at a great speed and bump the post against the trunk of a young tree, in preference a coconut palm. They do this as often as they can, to the great annoyance of the owner of the tree (and, judging by its squeals, no doubt to that of the pig). Their object is to uproot the tree and knock it down, and though this is an acknowledged custom fights over the performance seem to have been the rule in olden days. I adduce this Massim custom as it adds to the general characteristics of the feast, and indicates channels through which fighting might enter into the apparently well-regulated course of the feast.

It must be added that all the participants in the feast, and especially the master and his assistants, are in an extremely high pitch of nervous excitement. To this contribute the long fasting, the great consumption of betelnut, and, primarily, the very atmosphere of the feast and the strong feeling of responsibility, to which the master is undoubtedly subject. All the ceremonial speeches I heard at the two *Sóis* were spoken with great frenzy, with a quivering voice, foaming mouth, the muscles of the face twitching, and the whole frame shaking. It looked as if the man wanted to goad the apparently amazed crowd to some wild and desperate act. The effect, especially at night time, was so strong that I felt distinctly impressed, in spite of my complete sense of safety and of my good personal relations with all the performers.

I must say that I did not see any sign of quickening sexual life at the two *Sói* feasts, and it should be noted that the Southern Massim are distinctly more lax in sexual matters than the Mailu. In the light of what has been said in par. 3, chap. iii., this means only that, in public, decorum is maintained right throughout the excitement of the feast.

Parts played by Different Social Divisions in the Feast. Finally, it seems necessary to sum up in a few words the sociological aspect of the feast—*i.e.*, to show what social groups come into contact on such occasions, and how they interact among one another.

The feast is, in some communities of the Mailu district at least, an intertribal event. Thus at the big *Madúnas* of Mailu

So also the importance of the food is manifest in the ornamental display of bananas and sago, and in the fact that all the ceremonial and magical activities connected with the feast are directed towards the increase of food at the *Madúna*.

Perhaps almost equally fascinating in the eyes of the natives are the dances. A native dance, with full ceremonial decoration and, what is still more important, with full ceremonial setting, is something to be seen and remembered. I shall never forget the impression I received from a *Raún* dance, performed by some inland people at the feast in *Tsílotsílo*, and not the least striking accessory was the great excitement, mixed with feeling of real fear and awe, on the part of all those present. The artistic needs of the native are satisfied by the non-ceremonial dances.

Besides the ceremonial ornamentation of the dancers and of the master of the feast and his assistants, there is at each a general display of finery. Even on its approach, in Mailu, all the native ornaments were displayed, and in this way there were revealed also more than ordinarily fine lime spatulas, elegant decorated combs, armlets, belts, ear-shells, etc. In this respect the *Sói* feasts I saw were real "Vanity Fairs," the native dandies swaggering about with ebony swords and sticks (useful in the case of scrimmage), wearing fine necklaces, and with their faces and bodies painted red, black, and white, in a more or less fanciful manner.

Another general feature of the feast was the fighting, which seems to have been very frequent, though perhaps not usually resulting in much bloodshed. Fights were almost on the point of taking place at the feasts I witnessed, though the district was quiet and fairly civilized, and my presence undoubtedly acted rather as a deterrent. I was told by Mr. Greenaway, who has been present at many *Madúnas*, that fighting was a regular feature of the feast, and the Rev. W. J. V. Saville informed me that at a feast in one of the Mailu villages of Orangerie Bay (eastern part of the Mailu district), at which he was present, a serious fight very nearly took place between the men of two usually hostile villages, who faced each other ready for the fray. It was only the presence of two white men, and their conciliatory efforts, that prevented an actual outbreak of hostilities. The cause was a quarrel over a woman, who left her husband and went to her own community to live with another man.

In a quarrel I witnessed among the Massim, it arose in one case out of a heated discussion over a pig, two parties laying hold of the unfortunate animal and nearly tearing it to pieces in their struggle while each asserted his right to the squealing victim. As I had to act as an arbiter in this village, people of the Southern Massim district, from *Bónabóna*, *Dahúni*, etc., used to come, even in olden days, and I was told that people from *Aróma*, in the west, occasionally used to come as guests of the Mailu for the exceptionally sumptuous feasts. On the mainland the range of invitations was much more restricted, a few neighbouring villages only being invited. I failed to ascertain whether the inland people (*Udáma*, etc.) were accustomed to come to the mainland *Madúnas*.

The village community amongst which the feast took place acted collectively as the host—even if the feast was given by one or by a couple of clans only, and not by the whole community; the latter, however, always had a great deal of work to do in the way of helping the feast-giving clan, and they would, moreover, undoubtedly share in its glory.

In the larger communities, such as those of Mailu, *Kurére*, *Domára*—I think even *Derébai*—the feast is given by one or two clans. Thus this year (1914-15) the *Madúna* in Mailu was given by the *Maradúbu* and *Moráu* clans; the previous year by the *Urúmoga*; two years ago by the *Bodéabo*; three years ago, again by the *Maradúbu* and *Moráu*, and so on, by one or two clans in turn. The smaller clans, *Maradúbu* and *Moráu*, which have been weakened by recent emigrations, naturally combine to give the feast jointly, but I was told that in olden days, when they were strong, the custom was to give the feasts independently of each other, just as the two stronger clans do now. I was also told that when a very big feast took place in those days the *Maradúbu* and *Moráu*, on the one hand, and the *Bodéabo* and *Urúmoga* on the other, used to combine in giving it.

As the *Maradúbu* and *Moráu* formed the western half of the village and the *Bodéabo* and *Urúmoga* the eastern, the local contiguity of these clans was reflected in their association as feast-givers.

Again, in the small mainland villages the feast was always given, not by a clan, but by a village community. This was quite natural, because some of these villages were composed of some ten to twenty houses, whereas Mailu has, roughly, eighty houses at present, and must have had more in the past.

Thus the friendly villages, which in the past lived on the hills about Port Glasgow, Millport Harbour, and Mayri Bay, used to hold their *Madúnas* in turn, one or more of the communities each year officiating, independently, as the feast-giver. In this manner the villages of *Bórebo*, *Dágobo*, *Unévi*, *Pedíri*, *Géagéa*, and *Banóro* acted towards one another in respect to the feast just as the clans in Mailu village do, though among the Mailu villagers the solidarity in the preparations to the feast was undoubtedly greater than among the members of these different communities. I was told, in fact, that this year three villages (*Pedíri*, *Unévi*, and *Dágobo*) were holding the feast, independently of one another. A few years ago *Bórebo* gave the feast; two years ago *Banóro*, and so on. It is to be noted, however, that though the whole village performed the *Madúna* at the same time, the single clans acted as independent units in its ceremonial aspect. Thus in *Bórebo* five platforms used to be erected for the *Góvi*, and there were five masters and five sets of *Udíni* arrangements. In *Géagéa*, where there are six clans, three platforms were erected, two clans using the same platform:—*Oraído* with *Waratsadúbu*; *Uda* with *Arúme*; and *Danáwa* with *Baráu*. Although, taken as a whole, a village community acted with relation to the other communities, in a manner analogous to the clan in the Mailu village, yet the clan structure within the village remained, and the part played by the clan and by its master was to a certain degree the same as in Mailu village, modified only by the fact that the other clans were active as well.

There was, as a rule, one master of the feast for each clan giving the *Madúna*. Thus, in the foregoing description, mention has been made of three masters of the feast in *Kurére*, though two only underwent the *Udíni* and performed the preliminary feasts, as if it was only those two who made the *Góvi madúna*. Again, in Mailu this year *Doúna* is the master of the feast for the *Maradúbu* clan, and *Váru* for the *Moráu* clan. In Mailu, however, when a single big clan performed the feast, there were always two masters—headmen of two of the subclans—and no one but a headman of a subclan could act as the master. Thus at the *Madúna* of last year, given by the *Urumóga* clan, both *Papári*, the headman of the *Banagadúbu* subclan, and *Atsuló'i*, the headman of *Boiladúbu* subclan, acted as masters. Again, when the same clan (*Urumóga*) made a feast a few years before, *Dagáea*, headman of *Gónidúbu*, and *Api*, headman of *Garadúbu*, were the masters. As there are six subclans in *Urumóga*, there were three changes of masters for the feast. Analogous conditions obtained in *Bodéabo*, and in *Maradúbu* and *Moráu* before they were weakened.

The master of the feast has to direct and supervise the preparations for it; he it is, as we have seen, who plays the most important part in the proceedings, and who also undergoes the ceremonial hardships. During the feast also he plays the most prominent *rôle*, calling out the names of the clans to whom food is given and delivering speeches. These he has also to make during the preparations. He is, in consequence, called *Obása maímai égi*, "the speech-making man." As all the details of the feast are strictly regulated by custom, there seems to be for the master no scope for much initiative. In fact, his function seems to be to give utterance to decisions and orders, which would naturally arise from common consent as well as from normal routine. But the natives hold in great appreciation the right of being prominent in the public eye, and the function of the master is consequently highly valued by a man. Again, there is no doubt that if the master be influential, his exhortations to the villagers to make and gather plenty of food (sago, bananas, etc.), his personal power to make many outsiders bring plenty of pigs, and his personal distinction would make the feast much grander and more successful than in the case of an insignificant person, and the master, for his part, would certainly reap the main share of the glory resulting from the success of the feast. But it must be noted that the master of the feast does not by any means receive the lion's share of the food. As far as I was able to ascertain and observe during the *Sói* feasts, the master is much less occupied with eating than the others, and if there are many people to whom some food must be distributed his final share in its benefits may be next to nothing.

The whole task of the clan at the feast consisted in the accumulation of the food (sago, garden produce, coconuts, portions of pigs). The clansmen had to join in the ceremonial proceedings and observe some light taboos, the strict ones being assigned to the master and to the men who acted as his assistants. So also it was the duty of the members of the clan to watch that the people received their dues in the form of pigs at the hands of those whose duty it was to give them.

It has been said (chap. iii., sec. 3) that the pigs killed at the feast were for the most part given on account of marriage connections. On the one hand, all those who had married a girl of a clan were bound to give pigs when her clan gave the feast. On the other hand, the clansmen received pigs from their fathers-in-law or brothers-in-law in return for the pigs given before as payment for their wives. At any rate, the bulk of the pigs consumed at a feast came from outside the clan, and I doubt if more than one per cent. came otherwise than through marriage connections. I have inquired into several cases, and drawn up lists of the pigs given, the result being that I found that all the pigs were given in "payment" for a wife or "gift." Some vegetable food is also brought with them by the men from other villages.

All the food accumulated by the work and care of the clan, of the village community, and of the members of other communities who are present at the feast, is divided between those present. The division is formally directed by the master, but I think his decisions are regulated by custom and *étiquette*, though I failed to inquire into this matter.

Looked at from our standpoint, the feast, in its economic aspect, might be described as a kind of picnic, organized by the clan or clans concerned, the expense being more or less equally shared by all those present, and the credit for success by the organizers, who have also undoubtedly been put to the greatest amount of trouble in the proceedings.(97)

4. DEATH, BURIAL, AND MOURNING.

General Remarks.—Reference has been previously made to the attitude of the native towards death and the dead, and in this connection mention has been made in sec. 5, chap. iii., of the *rôle* of the dead man's spirit in protecting the *Nebúru* coconuts, and of a similar part played by an ancestral spirit in reference to *Góra*. Again reference has been made to this subject throughout the first two sections of this chapter, especially in the first. I shall now give an account of death and burial as I have been able to reconstruct these events from the information gathered from the natives, for I have never witnessed the scenes occurring after death, nor the burial, nor the first stages of mourning. Many, indeed, of the old customs, as they are described in this section, could no longer be seen by a white man, as they have been abandoned, either in reality or in pretence, owing to the influence of Government rules and missionary teaching.

I have seen, of course, all the later stages of mourning, and I have watched the posthumous wailings in another district (Northern Massim, Woodlark Island). I am also convinced that I succeeded in obtaining an entirely trustworthy account of the facts as the result of independent discussions with several of my best native informants, who agreed perfectly in their concrete details. In this I was greatly helped by the kind suggestions of the Rev. W. J. V. Saville, who directed my attention to several customs carefully avoided by the natives. I am also indebted to Mr. Alfred Greenaway, who, later on, actually forced the natives to tell me truthful details by shaming them in my presence for their pretended ignorance, thus allowing me a share of the unlimited confidence he enjoys among them.

---

(97) The data given in this chapter ought to be compared with Prof. Seligman's description of the *Walaga* feast (*op. cit.*, pp. 589 to 606). Prof. Seligman's information will throw much light on many points I was obliged to leave obscure. I had, of course, at the time to confine myself entirely to what I observed and to what I could learn from the natives, and it was only on working up my notes that I realized how many are the correspondences between Prof. Seligman's facts and my own. I am convinced that the Mailu *Góvi madúna* and the *Walaga* are varieties of the same ceremonial institution.

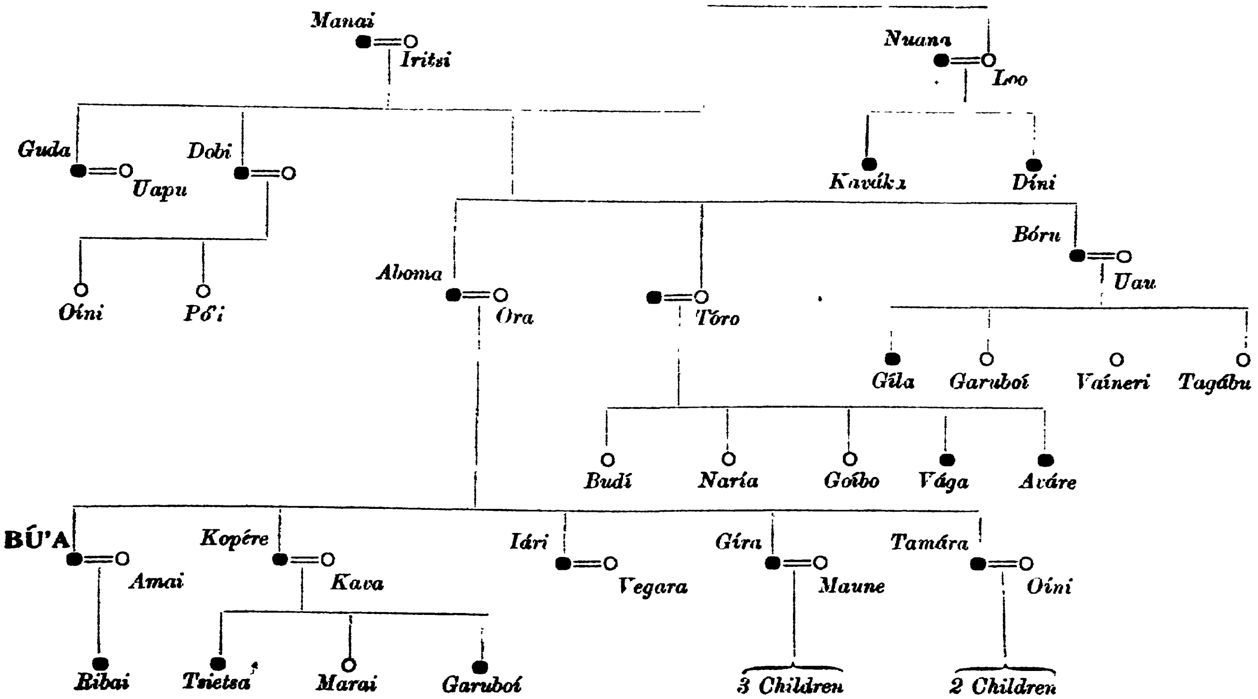
It is a well-known feature of the "savage" outlook that he is not satisfied with what we call natural causes of death. This means, strictly speaking, that whenever a death occurs there is the belief that some sorcerer has been the cause of it. This mental attitude was mentioned when black magic and sorcery were discussed, and it also influences certain details in the native burial customs.

When a man, woman, or child dies the death throws a more or less large section of the community into mourning, and consequently upsets the course of normal village life. In the case of a child, woman, or insignificant man, the disturbance is slight; but in that of a full-grown and influential man his death puts its stamp on many aspects of tribal life. It has been mentioned above (chap. iii., sec. 5) that the system of taboos imposed on coconuts varies in name and general character, according to whether there was an important death in the clan or not. Again, after the death of a man, a series of feasts are held, and these are undoubtedly connected with the big feast (see below). Again, the mourners undergo certain food taboos which modify the tribal ceremonies, and so on. Broadly speaking, a death entails more essential changes in a savage community, relatively to its size, than it does in those of a higher level of civilization.

The Mourners.—As the principal features of burial and mourning are the same in all cases, being only in the case of an influential adult more elaborate and entailing more social activities, I shall describe such a case, illustrating the general statements by a concrete example—that of *Bú'a*, the recently deceased, influential Mailu village constable, and, according to my conjecture, the chief *Bará'u* or sorcerer. The genealogy given below will serve as a basis for the kinship designations.

The chief mourners are called *Nanáma*. This class consists of the elder brothers *(Uini'égi)* and sisters *(Uiniavétsa)*, and of the younger brothers *(Raú'égi)* and sisters *(Ráu'avétsa)* in the classificatory sense of the term, which implies the inclusion of the man's own brothers and sisters and his first cousins, male and female; or, as the term cousin is not unequivocal, the children of both his father's and mother's elder and younger brothers and sisters. But it must be emphatically remarked that in the case of the *Nanáma* the classificatory relationship is not extended beyond this limit. I was assured that the grandfathers or grandmothers (paternal or maternal), brothers' or sisters' grandchildren (=second cousins) would not be *Nanáma*, and if they were not so in the case of such an influential man as *Bú'a*, it settles the matter.

GENEALOGY OF BU'A.



Black dots = men. White dots = women. ●=○ = Sign of marriage.

In the case of *Bú'a*, his *Nanáma*, or chief mourners, consisted of:—(1) His four brothers—*Kopére, Iári, Gíra, Tamára;* (2) his father's younger sister's *(Tóro's)* children—*Búdi, Naría, Goíbo, Vaga, Avare;* (3) his father's younger brother's *(Bóru's)* children—*Gíla, Garuboi, Vaíneri, Tagábu;* (4) his mother's elder brother's *(Dóbi's)* two daughters—*Oíni* and *Pói;* (5) his mother's younger sister's two sons—*Kaváka* and *Díni*. The paternal and maternal uncles, as well as the brothers' or sisters' children are not *Nanáma*.

The widow also assumes deep mourning, though she is not called a *Nanáma*, but a *Doá'e*. The man's children do not assume the deep mourning of either category, nor would a man mourn for his children. A mother is subject to deep mourning for her children, but I failed to record in my notes whether she belongs to the *Nanáma* or *Doá'e* class, though I remember having been informed that the latter is the case. The name of bereft parents is *O'evaétsa*. A husband performed also the *Doá'e* mourning for his wife, and the children mourn for their mother, as far as I remember, though I again failed to record the fact.

Besides the chief mourners—the *Nanáma* and *Doá'e*—there is the class of *Mágu raguá'i* people, who keep the *Nebúru* coconut taboos, perform certain duties during the mourning feasts and at the burial, and contribute essentially to the mortuary feasts. The *Mágu raguá'i*, in the case of an influential man like *Bú'a*, comprises all his clansmen, and many other people as well. In the case of a less important man the *Mágu raguá'i* would be some of the members of the subclan and some of his other friends and relatives—*Emégi goína*.

The Mourning.—The first period of mourning, during which the sorrow is expressed by loud wailing, weeping upon the dead, and by other acute symptoms of grief, is called *Ini* (to cry). During this first phase the *Nanáma* and *Doá'e* are in the deepest mourning dress, their hair shaven, their skin deeply blackened, and the body covered all over with mats, which are also drawn over the head and conceal the face. If they require to move they walk about very slowly in a crouching position, with the mat kept over the head.

The second, much longer, period is called *Mágu*. This is commenced by the deep mourners some time after the man's death, and it is also observed for some time, though not very strictly, by the *Mágu raguá'i*. The *Mágu* people—*i.e.*, the deep mourners in the later stages—smear themselves all over the body with black *(Gurúma;* in Motu, *Míro)*, which is usually burnt coconut fibre, moistened with water and kneaded into a paste. This pigment is never completely washed off the body for any length of time during the *Mágu* period. But in order to maintain its brilliancy and blackness it is periodically renewed. This is always done at some "social" opportunity, such, for instance, as during a visit to a neighbouring village, or when assisting at a small feast or ceremony, or when returning home from an expedition. Otherwise the pigment would not be kept quite up to the mark, and the brown of the skin would be seen through it, making the man appear dirty rather than black.

It has been mentioned (sec. 1, chap. iii.) that in mourning the hair of the head is shaved and that on the face allowed to grow. This is continued by the deep mourners throughout the *Mágu* period. The armlets of plaited fern vine, plain, or ornamented with yellow orchid straw, are thrown away, and in their place less ornate armlets of plaited string or of plain white fibre (called *Kue-kue* in the mainland Mailu dialect). Again, all the finer ornaments made of red shell discs are removed from the body; a man might also wear a necklet of string, with one or more white cowrie shells *(Ovulum ovum)* suspended from it. The right thing to do was to make up a necklet comprised of various relics of the dead man; his hair in the first place, his perineal band, his comb, shell-disc ornaments, etc. All such articles were bound together with strings and formed a fairly bulky ornament. So also plain strings, called *Navanavára*, were worn across the breast.

During deep mourning a man might not dance, nor fish; he could, however, work in his garden, and he might do some hunting, but not much. The coconut taboo observed by the mourners has been dealt with above in sec. 5, chap. iii.

Weeping for the Dead, and Burial; Mortuary Feasts.—After this general outline of mourning and of the mourners, let us turn to the details of the events that occur after a man's death, immediately and later. After a man dies his nearest relatives, friends, and acquaintances intone the wailing. This is a weird sound, very highly pitched and monotonously regular—first a long howl, then three short ones, terminating in a long one again. I heard this sound once only, in *Dikóias* village, *Muiú'a* (Woodlark Island), and for a while, until I guessed what it was, I was quite puzzled as to whether it was an extraordinarily loud wailing of children or some strange howl of Papuan dingoes, or what not. The lamentation of the nearest relations goes on for a considerable time, though that of the others soon ceases. The *Nanáma* and *Doá'e* sit round the corpse and embrace it, wailing and exclaiming, "*Ina nábu ee...!*" (long drawn)—"O my younger brother (or sister)!" or "*Ina úini ee...!*" (long drawn)—"O my elder brother or sister)!" They are also said actually to cry and to be very sad.

During this time the mourners (*Mágu raguá'i*) supervise the business side of the mortuary proceedings. I was informed definitely that these, rather than the deep mourners, manage things during the first stages of mourning. Thus, immediately after the man's death, they bring a certain quantity of coconuts to be distributed amongst all the houses of the village. This custom is quite analogous to the small coconut feast, given by the owner when he wishes to establish a *Góra* over his nuts, and this small distribution of nuts after a man's death is the beginning of the *Nebúru*, or mortuary taboo on coconuts, kept when a man dies. Before distribution the coconuts are piled in front of the dead man's house. This coconut feast is called *Léle báu.*

The burial took place very soon after the man's death, and it was never done at night. Thus if a man died in the evening, or so late in the afternoon that there was no time for all the preliminary proceedings, he was buried next morning. If, however, a man died before noon, or soon after, he would be buried the same afternoon. In the case of an important man there might be greater delay in the burial, as there was more to be done in the way of preparations.

The corpse was washed with *Górogóro* (coconut cream, of sec. 1, chap. iii.) and decorated, the more valuable ornaments being removed before burial. After a time, when the interment was about to take place, the body was placed upon a *Tsiná'u*, or large tray of plaited coconut leaf (*cf.* sec. 7, chap. iv.), and as a rule two such trays were placed underneath and one above the body. A plaited mat (*Eba*) of the same kind as is used for making sails (sec. 4, chap. iv.) is used to cover the body, being placed between the *Tsiná'us*, and the whole of this arrangement is wrapped in a pandanus mat (*Elaki*). The bundle so constituted is now again put between two *Tsiná'us*, and thus placed upon a board—usually one obtained by breaking up a worn-out canoe. The corpse is laid upon two poles, to which it is tied, and it is carried by four men, each supporting one end of the pole. The men who carry the body (called *Gábi aiui tsiá'u*) are kinsmen of the dead man (*Emegi goína*), belonging to the *Mágu raguá'i* class; but they do not include any of the deep mourners. The body, thus carried, is brought out of the house and placed in the middle of the street, the four men holding it on the bier. The principal *Nanáma* man—the eldest surviving "brother" (own or classificatory, as specified above)—addresses the departed by his name:—

> "*Matáu ga aiéni*
> *Gana urúra aiéni!*"

which means, in a free translation, "*Matáu* come!" They also exclaim, "Where are you? Are you here? Are you present?" On this the body rocks and sways, which is the sign that the spirit, *Bó'i*, is there, and that it is paying attention to the address.(98) Then comes the important part of the invocation—that in which the spirit reveals the name of the *Bará'u* (evil sorcerer) who has killed the deceased. The chief *Nanáma* again addresses the *Bó'i* (spirit) of the dead man, enumerating a number of villages of bad repute for harbouring evil sorcerers:—

"*Borowai* *bará'u* *bá* (long drawn)
village name evil sorcerer
Dobuopu *bará'u* *gabá* (long drawn)
Manubada *bará'u* *má*
Gadaísiu *bará'u* *má*
Bína *bará'u* *má*
Géagéa *bará'u* *má*."
Etc., etc.

A long list is thus named—these, of course, being only *Bará'u* villages—*i.e.*, such as were on bad terms with the Mailu. When the name of the village that was guilty of the murder by sorcery was called out, the man's *Bó'i* gave sign, and the body swayed violently.(99) The name of this proceeding and of the address to the dead man's spirit is *Vága*.

Then the body is buried *(Gúri tsiáu)*. As there are some differences in the mode of burial, or, rather, of the disposal of the dead in the various groups of villages in the Mailu district, it is necessary to speak of these separately. On Mailu Island, as well as in the adjoining villages of *Laruóro* and *Loupóm*, and on those of the mainland from a point opposite Mailu westwards, the body, wrapped up as just described, was buried, extended on his back in a shallow grave, either under his house or among his coconuts.

Over the spot, if the grave was dug in the garden, a small mortuary hut *(Kápa)*, about two metres long, 1·50 m. high, and 1 m. wide, was erected, but as such huts are no longer made on Mailu Island, or, at least, very rarely, I did not see one. On showing to my informants the grave hut of the *Suá'u* natives, as reproduced on the plate facing p. 608 in Professor Seligman's book, they said the Mailu *Kápa* was exactly like that, except that its roof was made of *Tsináu* (plaited coconut leaves), and the upper ridge of the roof was straight and not curved, just as the horizontal ridge line of the Mailu house is straight and not concave, as it is in the Massim house. Sometimes a small fence *(Gúna)* only was made over the grave. If the grave had been dug under the man's house the place was marked by two pieces of wood.

---

(98) *Cf.* sec. 1 of this chapter where the different "spiritual parts" of a man are enumerated.

(99) Though this is only a conjecture, I wish to add that it is probable that the people holding the body were taking a *bona fide* part in the ceremony. The nervous tension at such a time must have been intense indeed, so that it is not surprising that at a certain moment the men swayed the body and believed it moved by itself.

The mode of burial was to a large extent determined by the man's social position, the important men only being interred under their houses; but it was also influenced by the season. As the deep mourners had to keep watch near the man's grave (see below), it was essential to secure them a certain minimum of comfort. Thus, in the very hot and dry season, at the end of *Lióro* and beginning of the small *Avára*, when the heat is at its greatest and the rain has not yet come, the body would in any case be buried among the coconuts, and the small *Kápa* hut constructed; but if it was the wet season the corpse would be placed under the house. As the mourning was only very strictly kept in the case of important men, it is natural that in other cases the natives should prefer to bury the dead in the gardens.

As the presence of a dead man in the village was always a source of some discomfort, it was preferable, for superstitious, not hygienic, reasons, to have as few burials in the village as possible, and I think, though I am not quite certain on this point, that the *Kápa* (small mortuary house) was made over the graves of important people, and the *Gúna* (fence) over those of all the others. Again, I was told that on the islands (Mailu, *Loupóm*, *Laruóio)*, which are considerably drier than the mainland, the garden burial prevailed, while in the villages, on the mainland opposite Mailu, such as *Dérebai*, *Wouuóro*, *Kurére* (which is a Mailu settlement), and in others to the west, the reverse is the case. The mainland villages to the east, beginning with *Bórebo*, *Dágobo*, and *Unévi*, as far as *Géagéa*, also practised the forms of burial as described, though without the mortuary hut, burying their dead for the most part under the houses.

They sometimes used to dispose of the bodies on platforms in crevices of the rocks, in a manner that I will now describe. This was the exclusive burial practice of the few Mailu villages situated at the western end of Orangerie Bay, between Port Glasgow and the village of *Gadaísiu*, which marks the boundary between the Mailu and the Massim. I saw such a burial-place, called *Dório*, where the three small villages—*Oibáda*, *Nobá'i*, and *Ori* used to lay their dead. It is situated at the mouth of a creek, quite close to the seashore, where a rock about 50 m. to 75 m. high rises above the sloping bank of the creek, which is clothed with a thick undergrowth that shelters the crevice. At the top of the bank, where the rocky wall rises, there are several shallow, but wide, cavities, with a front of about 30 m. or 50 m. In these there are several ledges and niches, and, as the rock is overhanging, anything placed under this shelter is protected from the weather. Here I saw several small platforms of very frail construction no higher than 150 cm. to 200 cm., about 100 cm. long, and about 60 cm. wide. On these were placed bundles of human bones, wrapped partly in the *Elaki*, or pandanus mat, and partly in fibre petticoats, and I was told that the kind of wrapping denoted the difference between the sexes. The bundles were short, so that if they were made whilst there was flesh on the bones the body must have been wrapped in a squatting position, and this my informants said was actually the case. Some of the platforms were falling to pieces, and the bundles were on the ground which was strewn with bones, and a score or so of skulls were deposited on the ledges. Unfortunately I had only a few minutes to spare, so that I could neither take a photograph nor make a careful study of the place.

It is interesting to note that this mode of burial of the extreme Eastern Mailu cannot be attributed to contact metamorphosis induced by the influence of their eastern neighbours, for the Massim of the eastern half of Orangerie Bay either bury their dead or dispose of them in half a canoe—the latter form being apparently the exception. These bury the corpses, not extended in a supine position like the Mailu, but in a squatting attitude, with both hands joined over the feet, the body being laid on an *Elaki* mat spread on the bottom of the grave and covered with two other mats. Burial took place under, or near, the house, a small hut being erected over the grave. (100) If the body was buried in a broken boat it was laid supine.

To return to the Mailu burial practices. After the body has been laid in the ground, whether under the house or in the garden, all the people disperse except the mourners. The deep mourners—the *Nanáma* and *Doá'e*—are bound to remain by the grave for a fortnight to a month. The *Mágu raguá'i* do some wailing, but they move about, and can remain, or go and come as their grief and other necessities bid them. The deep mourners, however, must never move from the place. If the grave is under the house, they sit there, and at night only move to the room above or to the verandah. So also, if the grave is in the garden, the mourners sit there the whole day, arriving at daybreak and returning to the village at sunset. As previously mentioned, they sit during the first days of mourning with mats drawn over their heads, they walk slowly, with their bodies bent, and move from the spot merely whe compelled by natural necessities. They wail and cry an address the deceased by kinship terms, not by his personal name. They also talk to him, expressing grief:—

---

(100) Comp. Seligman, *op. cit.*, pls. lxx. and lxxi.

"*Aiéni íne; ónióni déma; gána urúra; baíbai déma; gána nabu; éna varóra; aúri loitsaítsi; dábae káokáo otsiba.*"

Which, in a free translation, means:—"Don't go; let us go together to your house (return); come back to your younger brother; if you go, let us go together to another house." These and similar expressions are used, all showing the great grief and the desire of the bereft ones to keep the deceased with them.

Some three days or so after the burial the first small feast (called *Bá'u* or *Baivara tséitse)* is given. It consists of vegetable food, coconuts, bananas, taro, sago, etc., the coconuts being supplied by people who do not observe the *Nebúru*, and the other food by the mourners. The latter, however, do not partake of the feast, but only give the food away to others.

After this feast the mourners pull the mat from over their heads, though they still wear it on their shoulders.

At the expiration of the next eight days or so another small feast, *Déni bá'u*, is held, similar in its social aspect and in the food eaten to the previous feast, and at its close the mats are thrown away altogether, the wailing ceases, and the expression of grief becomes less acute. I am inclined to think that the number of these small feasts which are held depends upon the status of the deceased person, and that very probably the one just mentioned is normally the last. Names, however, for one or two more small *Bá'u* feasts were mentioned to me by my informants, which seem to me to have been observed only in the case of important men. There was, for instance, the *Baíba'e bá'u* or *Baíba'e tseítsei*, after which the mourners were said to leave their watch by the grave and to return to their usual occupations. So also the *Ariari tseítsei*, after which custom demands that the deep mourners should leave the village for a time and sail to other places. This custom was mentioned to me by several informants, and it was said to have been in the past rigorously observed in the case of deceased notables.

The account of these feasts is, I fear, not satisfactory, for I failed to ascertain what are the beliefs underlying them. I was, however, told by one of my native friends that the feasts were in some manner meant to feed the spirit, but my informant was not clear on the matter, and, indeed, confessed that he did not understand it himself.

After Life.—I also failed to obtain a satisfactory account of the beliefs concerning the doings of the spirit *Bó'i* during the wailing and the period after the burial, though I obtained some hints on the subject and on that of a future life. On the whole, however, I am not very confident as to the accuracy of these facts, as I obtained them from one informant only, and that a Mission boy.(101) This informant told me, with reference to the doings of the spirit at and about the time of death, that when a man is sick his soul wanders on a "bridge" towards the *Biúla*—the place of future life. All the other spirits try to frighten it away, and if they succeed and the intruder turns back from the *Biúla*, then the man does not die. If, on the contrary, the spirit succeeds in entering the *Biúla*, the man expires. The Rev. W. J. V. Saville kindly gave me another account of the *Biúla*:—"The spirit goes to the south-western end of the Island of Mailu, and sails away towards the horizon. There is a ladder there, and the soul descends." This account, apart from the high authority of my informant, is borne out by the fact that similar ideas concerning an after-life are entertained by the Motu.

There seems to be a certain amount of doubt as to whether the idea of *Biúla* is native or due to missionary influence.(102) I have inquired carefully into this subject, and though I was not able to obtain details concerning the *Biúla*, my native informants, without exception and independently, agreed that both the word *Biúla* and the belief in it were indigenous, and that *Biúla* was situated below the earth. One very good informant told me that it was a big native village on an underground river called *Bómu*. Slight variations, or even substantial differences, in the accounts of such a matter are not, however, astonishing. An ethnologist from another planet, for instance, might find it a matter of considerable discussion if he inquired where we located our heaven or hell. But though the spirit goes to the *Biúla*, it is not altogether apart from its body, as both the post-burial wailing and the following practices testify.

Final Mortuary Feast and Treatment of the Skull.—Some two or three months after the burial the body was unearthed and the head cut off, this custom being called *Léa bó'o*, or *Bó'obó'o*. The soft tissues that remained were removed by boiling the head in a native clay-pot, which was done in the bush by the man's wife or mother, and the head was then dried and placed in a basket, called *Tóba*. The baskets were kept in the houses, on shelves under the thatch.(103) Such a basket, covered with a piece of matting, was sometimes taken out of the house and placed near the relatives. A mother would do so with her child's skull, or a wife would keep that of her husband in front of her whilst making pottery or plaiting mats. Or, again, a brother's skull might thus keep company with a man at work or at rest. Mr. Greenaway tells me that in olden days, before the natives were scared by Government rules and Christian preachings, people might be often seen sitting and looking at these relics with evident affection, and that they might even talk to them. This was primarily only the expression of love for the deceased relative, but sometimes the advice of the deceased in matters of importance might be sought from his skull, though in what way the natives believed the answer could be conveyed Mr. Greenaway could not tell me, nor could I ascertain from the natives.

---

(101) I have to thank the Rev. W. J. V. Saville for having helped me in obtaining details about this difficult subject.

(102) Several persons interested in Papuan ethnology and knowing the natives, expressed this doubt to me personally.

As previously mentioned (sec. 1 of this chapter), the spirit which went to the *Biúla* is called *Bau'égene:* the spirit which remained in the head is called *Bó'i*. That would explain the *dédoublement* of the man after his death. It is evident from the facts given in the first two paragraphs of this chapter that the prayers *(U'úra)* were addressed to the *Bó'i* exclusively, and the *Bó'i* also watched over the *Nebúru* and *Góra* (comp. sec. 5, chap. iii.).

To return from this digression concerning the spirit and after-life to the series of funeral feasts and practices. There remains one more stage to be described—the big mortuary feast *Oí'o*, which concludes the lesser mourning of the clansmen, etc. *(Mágu raguá'i)*, the *Nebúru* state of coconuts, and the deep mourning of the *Nanáma* and *Doá'e*. These latter however, continue the blackening of their bodies and the shaving of their hair for a considerable time longer. The *Oí'o*, or main mortuary feast, may take place some six months or a year after the death, whereas the blackening and hair-cutting is maintained, by the deep mourners, for two or three years. The date on which the *Oí'o* is held depends very largely upon the season in which the death has taken place, upon the importance of the individual, and upon other feasts. I have unfortunately failed to obtain quite conclusive information on the point, but I think that an *Oí'o*, as a rule, coincides, or, rather, is identical with either the big feast *(Madúna)* or with the first preparatory feast *(Maúru amáta)*. However this may be, it seems that if a man died in the wet season his *Oí'o* would be performed in the next *Aurári*—*i.e.*, about six months later. If the death occurred in the south-east monsoon season the feast would be performed in the following *Avára*. Sometimes, however, a year was allowed to elapse, as will be the case with *Bú'a*, the often-mentioned late village constable, who died some time in August, 1914, and whose *Oí'o* will be performed in the winter *(Aurári)*, 1915.

---

(103) Comp. chap. iii., sec. 6, in reference to the preparation and preservation of the skulls of enemies. These were placed in the *Dúbu*, whereas those of relatives were kept in the house.

The most important ceremonial element in the mortuary feast is the dance, called *Má'o*, which is performed by the mourners. In this the main part was taken by one of the nearest relatives, either male or female, the brother or the sister; sometimes it was the mother, but never the father or the widow. This performer dances the *Má'o* holding the dead man's head under the arm, and, at the conclusion of the feast, the mortuary hut was also destroyed.

After this feast the chief mourners still do not relinquish their black paint, nor do they cease shaving their hair. The end of their mourning coincides with some feast of the clan, when, by the performance of ceremonial work, the mourners finally cast off their signs of mourning

CHAPTER VI.

ART AND KNOWLEDGE.

1. Art.

Decorative Art.—Judged by the average Papuasian standard, the artistic productions of the Mailu, like that of the Western Papuo-Melanesians in general, are distinctly unimportant and unoriginal.(104) Their decorative art is limited to a few unpainted carvings, of which the designs of the carved wood *Birítsas* are, to my knowledge, the only original motives (see pl. xxxv.; comp. also chap. iv., sec. 4). The carved decorations on some of the house-posts (comp. chap. 2, sec. 4) are common to all Western Papuo-Melanesians; the motive universally found in the Mailu houses—the parallel rows of pyramids—being also one of the typical element in the carvings on the *Dúbu* of the Central District.

---

(104) The decorative art of the Southern Massim is definitely superior, and the Northern Massim produce really artistic carvings. So, also, amongst the tribes of the Papuan Gulf their artistic efforts are far superior to those of the Western Papuo-Melanesians and much more interesting. Comp. Dr. A. C. Haddon, "The Decorative Art of British New Guinea." Prof. Seligman says, "The Motu and cognate tribes . . . are the poorest artists in the Possession" *(op. cit.*, p. 37). I think this statement may be extended to all Papuo-Melanesians, and the Mailu are inferior to the Motu even in their tattoo. Comp. what Prof. Seligman says about the Motuan tattoo on p. 38.

The tattoo on women is practically the same as that found among the Southern Massim of the southern coast. The same holds good with reference to the decorations on the pottery. Now, the designs used in tattooing and on the pots have names among the Southern Massim of which the meaning can be usually explained; moreover, they are used in the various other artistic productions of these natives, such as the ornamentation on lime spatulas, wooden swords, paintings on houses, etc. The designs have, therefore, evidently been imported to Mailu from this district, and not in the reverse direction. This view is confirmed by the fact that the Mailu natives, when asked as to the meaning of a pattern, frankly admit that it is "a *Bónabóna* pattern," and beyond this they know nothing about it.

Again, all the wood carvings done in Mailu, such as the lime spatulas, sago spoons, and wooden dishes, are evidently copies, in much inferior workmanship, of the fine carvings imported from the east, consequently the decorative art of the Mailu should be studied in connection with that of the Massim, but as this cannot be done here I shall limit myself to the above remarks. (105)

Dances and Songs.—In these arts the Mailu seem equally unproductive and unoriginal. All their dances and songs come either from the east—from the Southern Massim and the tribes inland; or from the west—from the tribes around Hood Bay, and chiefly from the village of *Kerepúnu*, a great centre of choreutic art. One or two of the dances have been borrowed from the inland tribes of the Mailu district. A short survey of the dances and songs performed at present in Mailu must here be sufficient, as an adequate description could only be given after studying them in their own respective homes. Many of the dances and songs are simply taken over without taking any trouble as to their meaning, and it would be interesting to study the process of such borrowing. This would involve an investigation of the original version, as performed and interpreted by the people who originated the dance, and of the copy, as performed by the borrowers.

---

(105) In order to describe and analyze the decorative art of Eastern New Guinea, it would be necessary to study it in its two main *foci*—that is, in the Trobriand Islands and in the Louisiades. As I have as yet been unable to study either of these areas, it is impossible at present to undertake the survey indicated. There is, however, no doubt that both areas mentioned have had paramount influence on the art of the whole extreme east of New Guinea.

The Mailu, when speaking of their dances and songs, distinguish between the *Madúna* dances and the *Bára* dances, although, as mentioned, the *Bára* may be also performed at the *Madúna*. All the former, which comprise the *Góvi*, *Raúa*, *Tsélo*, *Damoréa*, come from the east. *Bára* is the collective name given to a group of dances of a similar character, and introduced from the west (comp. chap. v., sec. 3, where the difference in the preparatory ritual of the various dances has been stated).

Góvi.—As mentioned above (chap. v., sec. 3), this is the most important and most sacred of the *Madúna* dances, which must always be performed at a really big and important feast. I never saw it, and I am consequently unable to describe even its general character, but from native descriptions and demonstrations of the steps I may give the following particulars. It is always performed on a platform, at the middle of which stand the men with drums, who beat the time and sing the song. The dancers perform their dance on the four raised beams, laid on the four sides of the square platform. The dance consists of steps of a somewhat acrobatic character, the performer assuming a squatting position and then springing up, and in Mailu I was told that the movements are in imitation of the hopping of the kangaroo. In the Southern Massim district, however, I was informed that the dance represents the bird of paradise, and this view seems to be borne out by the fact that the dancers of the *Góvi* wear wigs of the feathers of these birds. As the home of the *Góvi* is neither Mailu nor the Southern Massim coast, but the mountain tribes inland of Orangerie Bay (eastern half) and of Mullins Harbour, it is only the study of the latter that would enable one to grasp the real significance of the *Góvi*.

Raúa.—In this dance, which comes from the same inland people as the preceding, the dog is said to be mimicked. I once saw it performed ceremonially at the *Só'i* in *Tsílotsílo*. Men wearing large crown-shaped feather ornaments on their heads, three or four of whom acted as chief performers, advanced slowly in a large procession. One of the four, who was said to personate the dog, ran hither and thither with short steps among the other dancers. The beat of the drums was slow and regular, and the accompanying chant very monotonous and unmelodious.

Tsélo.—This is derived from the east, though the Mailu natives were unable to give me the exact locality of origin, nor could I ascertain this on my visit to the east. I saw this dance performed several times in Mailu, but never ceremonially—that is, with full decorations and scrupulous adherence to all the details of strict performance. The dancers stand in a circle, all holding and beating drums, and one of them begins a chant, in which the others join. The drums are beaten, not in a simple, regular rhythm, as is the case in the majority of dances, but the beats are varied and include fairly complex rhythmic figures. The song also is exceptionally melodious and musically interesting, showing rudiments of part singing, inasmuch as the initial melody is repeated by various singers, whilst the others sing a monotone in unison, so giving a harmonic background to the melody. Two of the dancers, who face each other in the ring, raise their drums and dance towards each other, in imitation of birds, as I was told.

Damoréa.—This dance, which is also an introduction from the east, is perhaps the most popular dance among the Southern Massim. At any rate, it was that most frequently performed during the *Só'i* feasts I witnessed on the southern coast. In its strict ceremonial setting, it is danced by women only, though when it is danced for entertainment only the men join in the singing and drum beating. The decorations for the *Damoréa* are sometimes very various. The women wear crowns of white cockatoo feathers and have the lower parts of their faces painted white (see pl. xliii., fig 2). Sometimes the women wear small boards made of some light, soft wood, painted red, black, and white. They put on, as a rule, all their most valued ornaments—the arm-shells, the strings of shell discs, and other necklaces, and in their hands they hold a pearl shell or a piece of pandanus mat *(Elaki).* In the Massim district the correct thing is to hold one of the ceremonial axe blades, but these are not used by the Mailu. The dance is performed by two, four, or six women, who usually dance in couples. The "band," consisting of women who beat the drums and sing, stand in the middle of a large circle of spectators, between whom and the band the dancers move. The music of the *Damoréa* is like that of the *Tsélo*, though simpler and less interesting from the European musical point of view. I was not able to ascertain the meaning of the songs or of the dance, though the latter had certainly a pantomimic character. The various figures were performed with slow, languid movements, the women, in one, looking down upon the ground as if searching for something, in another examining each other's ornaments.

Daúgé.—This is a dance of the inland people of the Mailu district, with whom it was a war dance, and by my native informants was not considered to be a *Madúna* dance. I never saw it performed or demonstrated.

Kóbiai.—Imported from the eastern end, and at present very seldom danced. I was unable to see it performed or to get any particulars concerning it.

All these dances have certain common characteristics, which differentiate them from the *Bára* class of dances. The performers all dance to very slow beats of the drums, and usually move within a circle or a closed geometrical figure (a square in the case of the *Góri*). Again, in all of them animals seem to be imitated, and I was told that this was so in the case of the *Kóbiai*, though my informants could not say what animal was imitated. The *Damoréa* may be an exception. In all of them, again, as far as I know, there is a band and a few performers, who dance the steps with pantomimic movements. Usually the dancers are specially ornamented and have no drums.

The *Bára* is quite different. It consists of a succession of very quick dances, performed to the accompaniment of a loud beating of drums, without the song, as well as of much slower dances with a song. Some of the latter are distinctly pantomimic, and represent such actions as felling a tree, building a canoe, making sago, rowing a boat, and the representation of a thunderstorm, etc. Both the motives and the character of the pantomime are rather artificial and theatrical. Some again of the slower figures consist merely of songs, sung to a rhythmic sway of the body and to a slow beat of the drums (see pls. xli., xlii., and xliii., fig. 1.(106)

2. KNOWLEDGE.

Knowledge of Stars and Weather.—The Mailu natives have a good practical knowledge of the sea, of its tides and currents, and of the wind and weather. They are good seamen, as the sailing of their double canoes requires a certain degree of seamanship, and this was especially true in the olden days, when it was often more dangerous to approach the coast and beach the canoe than it was to face rough weather. They have a very good local knowledge of the reefs, and native boys are very useful in the sailing of the white-man's craft; some of them even are in charge of small sailing vessels and motor launches. The Mailu are in that respect quite as skilful as the Motu and the *Hulá'a* people.

They do not, however, take any theoretical interest, if I may so put it, in their surroundings. They have, for instance, neither "explanatory myths," nor any other theori s as to the origin or nature of the sea and land, or sun, moo . and stars. There is, however, a legend concerning the origin of Mailu Island, which asserts that it was hauled up out of the sea during a big fishing expedition from *Aróma.*(107)

---

(106) I have had very good opportunities of studing the *Bára*, as it was danced practically every evening for weeks before the day of the *Madúna*—which, in fact, was to take place in Mailu a few days after I was obliged to leave. The *Bára* I saw danced on the mainland in *Kurére* and in *Gómoredúbu*, in the *Sinaugholo* district. As I am at present ignorant, however, as to a number of its essential features, and as I hope to be able to see it in its proper home in Hood Bay, I prefer to leave my description for a future publication.

Very few stars are differentially named, and among these the morning star is called *Laráni*, and the evening star *Gamovanováno;* but they do not know that the same star (Venus) shines at times before sunrise and at times after sunset. I also think that when another large planet—Jupiter, for instance—is on the western sky in the evening they give it the same name. Nothing is known about the nature of the morning and evening star.

The Pleiades are called *Uniára.* They are said to be women, and the three stars of Orion's Belt are named *Borá'a'éva.* These are said to be a man, a pig, and a child. There must have been some explanatory tales connected with these constellations, but if so the natives in Mailu have forgotten them completely, because even the oldest and wisest men knew nothing about the subject.

The natives are acquainted with many of the features of the tides. They know the spring and neap tides, and their connection with the moon; also the fact that the differences of level between high and low water is not the same in the two daily tides, and that, according to the season, this is greater in day time or at night time. One of the names by which the south-eastern season (the winter) is known is *Lagáru wúra*, which means dry reef. It is remarkable that the natives have different names for the reef by day *(Lagáru)* and by night *(Múma).* The *Múma* appears in the north-western season (summer), and during this period the fishing and collecting of shellfish is done by night. The season for day fishing is when the *Lagáru* is dry; that means during the winter or south-eastern season.(108)

It has been said that the natives are well acquainted with the seasonal sequence of winds; in fact, they name the seasons after the prevailing winds (see chap. iii., sec. 2). The directions are also named after the winds. Thus, as mentioned above, the south-eastern direction is called *Bodéa aúra*—the side of the trade wind; the north-western direction, *Avára aúra*—the side of the monsoon. Again, the north-eastern direction, from which comes the land breeze, *Tséba*, is called by the same name; the southern is called after *Gabína*, a light southerly wind which blows in spells between the monsoons.

---

(107) This legend, with several others, has been recorded by the missionary of Mailu, the Rev. W. J. V. Saville; these, I hope, will be shortly published by him.

(108) For the information about the tides and the reefs I am indebted to the Rev. W. J. V. Saville, whose thorough familiarity with the language, and his long contact with the natives, has given him an excellent knowledge of many aspects of native life and psychology.

There are also weather experts in the village, particularly an old man, called *Papári*, who I very often found foretold the weather quite correctly.

Knowledge of Disease and Doctrine.—My information on this subject is very imperfect. The natives seemed particularly reluctant to discuss such matters, perhaps because I was known as a *Dógeta* (doctor), in whom they suspected a tendency to interfere with their own practices, or perhaps on account of some other form of *jalousie de métier*.

The general term for illness is *Mará'i*, but there are besides some other names for minor ailments. Thus, *Vára iáia* is the name for headache; *Inigógu iá raitsera* designates an aching above the eyes, which is believed to be a very bad complaint. *Tsére raítsera* is an ailment in which the whole body is sore—the legs are sore, and the sufferer is not able to walk in a straight line. This is, however, by no means a native classification of ailment, which I was very anxious to obtain; but it is a difficult subject, and I was not successful.

The name for a doctor is *U'úra*, which is also the name for a magical incantation. A cure is called *Auráro*, and there seems to be only one cure for all ailments. The doctor chews the bark of the native cinnamon tree *(Góbu)*, some betelnut, and wild ginger root; an incantation is uttered, and the mixture is spat out. Massage *(Pápapápa)* is always practised upon the sick person, its ultimate aim being the extraction of foreign bodies, which, as a rule, are considered to be the cause of all illness. When the "doctor" feels that the foreign body has been brought near enough to the surface by his treatment he sucks the affected part, and then, with a retching sound, he expectorates the object which he is supposed to have sucked out of the patient's body. Stones, pieces of bark, small bones, etc., are thus extracted from the affected part of the patient, who in consequence is cured. The doctors are usually recruited from the male section of the population, and I only heard of one female doctor of repute. The price paid for a cure is considerable. In olden days it was one large arm-shell—a piece of native jewellery extremely valued by the natives. Nowadays the natives will pay as much as ten pounds (English money) for a good arm-shell, and the average price is one or two pounds.

With better opportunities it would have undoubtedly been possible to obtain more complete information, but these are often a matter of good luck in ethnological field work. On the whole, I think that the art of healing does not play a very important part in the tribal life of the Mailu natives, just as their sorcery and magic, to which native medicine is so akin, are also not very highly developed.

EXPLANATION OF PLATES.

Plate XXVI.

Map (facing page 503) showing Mailu, or Toulon, Island and adjacent coast of Papua.

Plate XXVII.

Fig. 1.—Village of Mailu seen from the north-west.

Fig. 2.—Village of Mailu seen from the east.

Plate XXVIII.

Fig. 1.—Scene on Mailu beach showing a double canoe *(Oró'u)* which has been temporarily converted into a house-boat.

Fig. 2.—A section of the village of *Bórebo* seen from the sea.

Plate XXIX.

Fig. 1.—The village street in Mailu looking westwards. The houses seen here belong to the clans *Maradúbu* and *Moráu*. Some of them are decorated with rows of sago bundles which, in view of the approaching feast, hang under the thatch eaves.

Fig. 2.—Western end of *Bórebo* village, showing the *Dúbu* standing in its characteristic position in the middle of the street.

Plate XXX.

Fig. 1.—Front view of a house in Mailu, showing the typical manner in which the natives occupy verandahs, or lower floor of the house.

Fig. 2.—Side view of a native house. In front a row of girls in their gala petticoats.

Plate XXXI.

Fig. 1.—Group of men in gala dress and decorated for the *Bára* dance.

Fig. 2.—Woman in mourning petticoat.

Plate XXXII.

Fig. 1.—A man squeezing coconut shavings for making coconut cream *(Górogóro)*. He has moved into the middle of the street for the convenience of the photographer.

Fig. 2.—Boiling of sago for a small feast. Men are stirring the contents of the pots with long wooden spoons. A temporary

shade, removed for the purposes of photography, has been constructed. Only on festive occasions are men concerned with cooking.

PLATE XXXIII.

Fig. 1.—Group of girls in festive dress. They are wearing glass beads.

Fig. 2.—Two women in gala petticoats, and one in mourning petticoat. They show the method of carrrying babies.

PLATE XXXIV.

Fig. 1.—Flotilla of Mailu toy canoes. The boy owners stand each behind his boat.

Fig. 2.—The toy canoes floating on the small bay in front of Mailu village. The boys have been grouped together for photographic purposes; usually they are scattered all over the shallow water.

PLATE XXXV.

Fig. 1.—Mailu double canoe *(Oró'u)* beached.

Fig. 2.—Side view of beached *Oró'us*.

PLATE XXXVI.

Fig. 1.—An *Oró'u* with hoisted sail.

Fig. 2.—Scooping out the large logs which are to form the dug-outs of an *Oró'u*. To the right an end-on view of a dug-out; to the left a side view. Over the latter a shade has been erected. This plate shows the "backs" of Mailu village.

PLATE XXXVII.

Fig. 1.—Hoisting of the crab-claw sail.

Fig. 2.—An *Oró'u* ready to sail.

PLATE XXXVIII.

Fig. 1.—Native dressed, and provided with the magical requisites, for the performance of arm-shell magic.

Fig. 2.—Arm-shell magic.

PLATE XXXIX.

Fig. 1.—Wrapping a bunch of bananas in leaves to protect it from flying foxes. (Photograph taken on the *Laróge* River, *Koita* district.)

Fig. 2.—Nets as set for wallaby hunting. The scene is after the hunt; the men have picked up their spears which, during the hunt, lie on the ground near at hand. (Photograph taken in the *Koita* district.)

PLATE XL.

Fig. 1.—Pot making in Mailu.

Fig. 2.—Final stage in the making of arm-shells; polishing of the shell.

PLATE XLI.

Fig. 1.—Group of natives dressed for the *Bára* dance and holding boars' tusk ornaments in their teeth.

Fig. 2.—A figure of the *Bára* dance.

PLATE XLII.

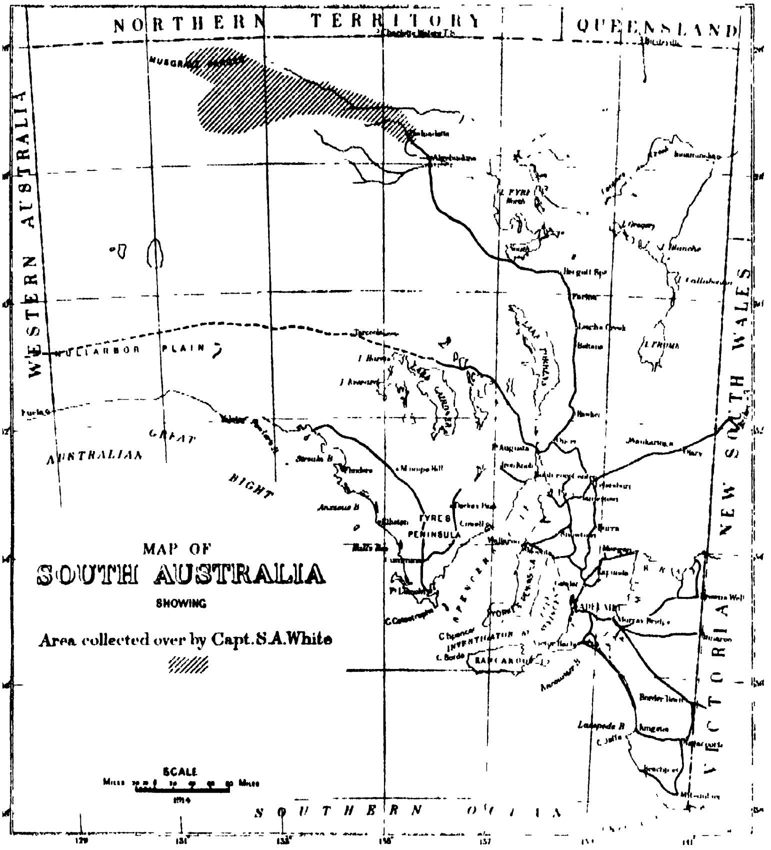
Fig. 1.—A *Bára* dance; ready for the quick step which is danced to the sound of the drums without singing. The houses in the background are decorated with "sausages" of sago, and bunches of bananas are seen hanging from posts erected along the street.

Fig. 2.—Dancing the quick step of the *Bára*.

PLATE XLIII.

Fig. 1.—A Pantomime figure of the *Bára*.

Fig. 2.—Women decorated for the *Damoréa* dance. (Photograph taken in a Southern Massim village.)



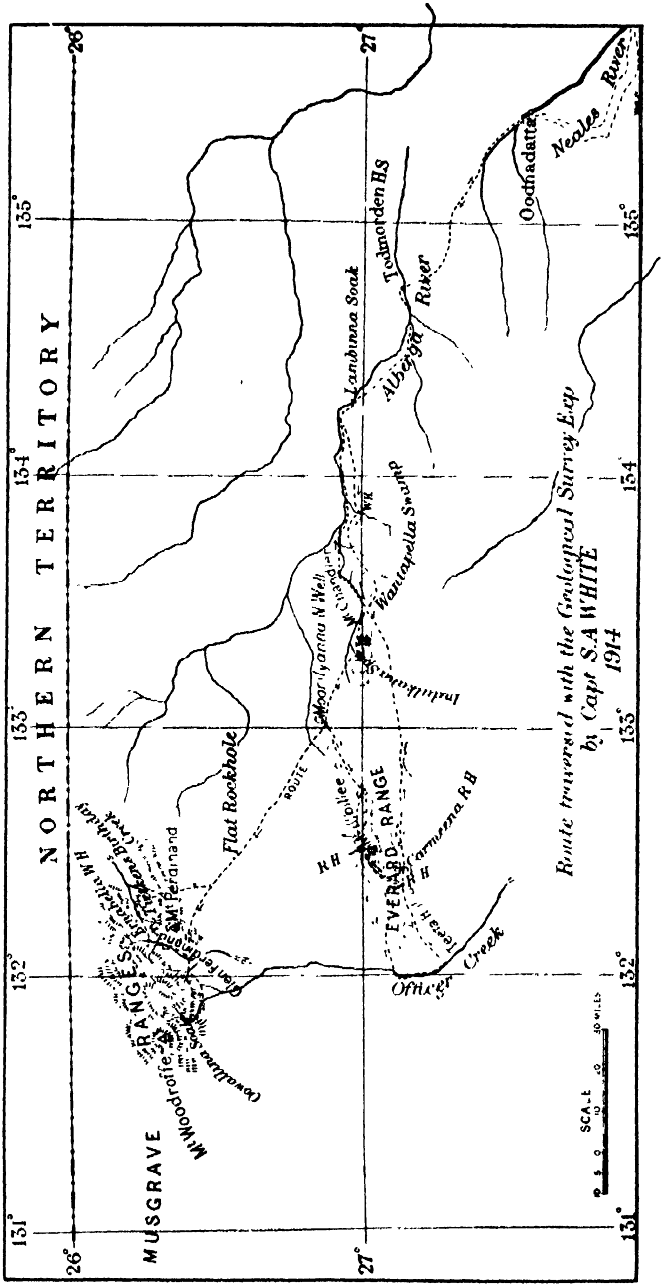
MAP OF

SOUTH AUSTRALIA

SHOWING

Area collected over by Capt. S.A. White

▨


NORTHERN TERRITORY
MUSGRAVE RANGES
Mt Woodroffe
Oowalluna Soak
Glen Ferdinand
Mt Ferdinand
Birksgate
Ernabella WH
Creek
Flat Rockhole
ROUTE
EVERARD RANGE
Wollee
RH
Carmeena RH
Teeta
Officer Creek
Moorilyanna N Well
Mt Chandler
Indulkana
Wantapella Swamp
WH
Lambinna Soak
Alberga River
Todmorden Hs
Oodnadatta
Neales River
Route traversed with the Geological Survey Exp
by Capt S.A. WHITE
1914
SCALE
0 5 10 20 30 MILES
26°
27°
131°
132°
133°
134°
135°

SCIENTIFIC NOTES ON AN EXPEDITION INTO THE NORTH-WESTERN REGIONS OF SOUTH AUSTRALIA.

[Read October 14, 1915.]

PLATES XLIV. TO LXX.

CONTENTS.

Page.

(a) NARRATIVE, by S. A. White, M.B.O.U. 707

(b) ABORIGINES OF THE EVERARD RANGE, by S. A. White, M.B.O.U. 725

LANGUAGE OF THE EVERARD RANGE TRIBE, by J. M. Black 732

(c) MAMMALIA AND OPHIDIA, by Edgar R. Waite, F.L.S. 735

(d) AVES, by S. A. White, M.B.O.U. 740

(e) STOMACH CONTENTS OF BIRDS, by Arthur M. Lea, F.E.S. 760

(f) LACERTILIA, by F. R. Zietz 766

(g) MOLLUSCA (Pulmonata), by A. R. Riddle 770

(h) ARACHNIDA, by W. J. Rainbow 772

(i) INSECTA :—

Coleoptera, by Arthur M. Lea, F.E.S. ... 793

Lepidoptera, by A. Jefferis Turner, M.D., F.E.S. 801

Hymenoptera, by W. M. Wheeler 805

(j) BOTANY, by J. M. Black 823

(a) NARRATIVE.

By S. A. WHITE, M.B.O.U.

PLATES XLIV. TO LXIV.

Through the courtesy of Sir Richard Butler (the then Minister for Mines), I was granted permission to accompany an expedition to the little known north-western corner of South Australia. This expedition being under the leadership of Mr. R. Lockhart Jack, B.E., I went as a scientist, but in an unofficial capacity, and took as an assistant collector and taxidermist Mr. J. P. Rogers. The present notes deal mainly with the zoological and botanical objects noticed during the trip.

On June 17, 1914, the expedition left Adelaide by rail, reaching Oodnadatta, 700 miles to the north, three days later. We were delayed for a short time at the rail head owing to the non-arrival of our camel train, but the time was utilized in collecting around Oodnadatta. Amongst some rare birds collected were the "Grey Falcon" *(Falco hypoleucus)*, "Black-banded Whiteface" *(Aphelocephala nigricincta)*—a record for furthest south for the latter.

Our party consisted of R. Lockhart Jack, B.E., F.G.S., leader; S. A. White, scientist attached unofficially; J. P. Rogers, S. A. White's privately-secured assistant and taxidermist; W. H. Williams and R. Nicholls, prospectors; J. L. Sullivan, camel man; and two aboriginals, Bob and Paddy. Our transport animals consisted of sixteen cow camels, mostly of a light stamp.

Our course after leaving Oodnadatta was a north-westerly one. During the first day we covered thirteen miles over gently undulating country, the plains being covered in saltbush *(Atriplex)*, the bladder saltbush *(A. vesicaia)*, and in some places old-man saltbush *(A. mummularia)*. The gentle slopes and ridges have a fair quantity of "mulga" *(Acacia aneura)* growing upon them, and on some of the creek banks stinking acacia *(A. cambagei)* grew; but the latter was soon lost sight of, and was only seen once or twice afterwards. A few unimportant birds were collected the first day.

Next day was a red-letter one, for we obtained several specimens of the long-lost "Banded Whiteface" *(Xerophila pectoralis)*. This bird was named from a single specimen by Gould in 1871. The type was taken near Port Augusta, but has long since been lost. The weather became threatening, thunder rolled all around us, so our leader went into camp near a creek, the banks of which were lined with gidya, or stinking acacia, about fourteen miles from our last camp.

Next day travelling was very unpleasant, for a few points of rain fell in the early morning which just wetted the surface of the ground, and man and beast carried a big wad of clay at every step. Cotton bush *(Kochia villosa)* was very conspicuous on this part of the journey. We passed the Murdarinna Waterhole on the Wooldridge at noon, and went into camp about 4.30, after travelling fourteen miles. The "Banded Whiteface" was again met with during the day.

Next day, July 1, a pair of the only lately described "Desert Bushchat" *(Ashbyia lovensis)* was taken, and at 4 p.m. we reached Todmorden Station, and were heartily welcomed by Mrs. Breaden (Mr. Breaden having passed us on his way to Oodnadatta). Leaving Todmorden late in the day we struck out in a westerly direction, following the dry sandy course of the Alberga River, and camped at 6 p.m. in thick mulga at seven miles. Weather quite hot in the daytime, but bitterly cold at night.

On the following day we met with the "White-browed Treecreeper" *(Climacteris erythrops superciliosa)* for the first time. The mulga round this camp was much larger than usual, owing to the country being flooded at times from the Alberga River.

An early start was made next morning, following the Alberga through a mulga country till we reached the junction of the Coongra Creek, which we followed till 4 p.m., when we camped in a dense mulga scrub. A good many botanical and bird specimens were collected during the day. One of our black boys, "Paddy," overtook us at this camp, having left Todmorden cattle station a little before sundown, and reached us with a mail before midnight, having covered the twenty-seven miles in less than five hours on foot.

After another cold night we packed up ready for a start, but the camels wandered during the night, and the boys did not bring them in till late. It was 11 a.m. before we made a start, and we did not stop till 6.45 p.m. at Lambinna Soak.

Leaving Lambinna we made up over the tableland country. The gibber plains do not seem so pronounced on the tablelands as north of Oodnadatta, still there were long stretches of country covered with small fragments of rock polished by the action of wind and sand and coloured brown by the effect of oxide of iron, on which the sun's rays shone so brightly that it pained one's eyes. Birds were very scarce here, and only a few specimens of the more common varieties were collected. The "Cinnamon Ground Bird" *(Samuela cinnamonea)* was met with at times. On reaching Yoolperlunna Creek we camped at a waterhole, and here we met with "Western Ground Cuckoo-Skrikes" *(Petropodocys maxima)*. They came to the waterhole in the evening to drink. It was at this camp that the first specimen of a species of *Malurus* was secured, which came between *M. melanotus callainus* and *M. m. whitei;* it will be found under the former name in the list of birds.

After leaving here our course took us over rough stony tablelands. During the afternoon we emerged on to a very fine plain dotted over with clumps of mulga and low bushes of *Eremophila*, sp.; the latter was out in blossom, which attracted a good many "Singing Honey-eaters" *(Meliphaga sonora)*. Another half-day's travelling took us off the stony tablelands, and we entered upon the best piece of country we had seen west of Todmorden; plenty of good fresh saltbush, and the mulga looked healthy and green. Low hills showed up at some little distance on either side, upon which grew a quantity of mulga; the soil seemed deep, and of a red sandy nature. We reached Wantapella Swamp, which at the time of our visit was quite dry, and had been so for many years. It is a large depression about two miles long by a mile wide, and the surface was sunbaked and cracked; it was more or less covered by large bushes, up to 8 or 10 feet high, of a prickly plant, *Chenopodium nitrareum.* This was the home of the "White-winged Wren" *(Hallornis cyanotus),* also that sweet songster, the "Redthroat" *(Pyrrholaemus brunneus).* This was the furthest west we met with the "Banded Whiteface." This is no doubt due to the change of country which takes place a short distance west of this spot. A small covey of "Australian Dotterel" *(Peltohyas australis)* was met with, and several "Australian Bustards" *(Austrotis australis)* were seen. Here, owing to a day's delay (for adjusting loads, etc.) a fair number of birds, insects, and botanical specimens were procured.

Leaving Wantapella Swamp and travelling in a north-westerly direction the Indulkana Range soon showed up, with the mount of the same name forming the termination at the eastern end. The country was fairly flat, of a red sandy nature, with open mulga and saltbush plains. We passed right under Mount Chandler and along the northern side of the range, going into camp just outside the gorge in which Indulkana Springs are situated, with the high rugged range overshadowing us. Just after reaching this range a new grass wren *(Diaphorillas,* sp.) was met with, and other birds were procured. We passed through much bluebush *(Kochia eriantha)* near the range.

Early next morning our leader, Williams, and the writer took two camels, with two 25-gall. casks on each animal, up a deep stony gorge, at the head of which the springs are situated. We filled the casks at the largest spring, round which a quantity of rushes was growing. The water was of fairly good quality. There were several other springs, but some of them were quite salt. After the casks were filled I walked to the top of the gorge and found that the water, after heavy rains, must rush down with great force amongst huge boulders from a small catchment on the top of the range. The native fig *(Ficus platypoda)* and Murray pine *(Callitris robusta)* were met with for the first time in this gorge. Leaving the Indulkana Range we took a little more westerly course across a saltbush plain, crossed the Indulkana Creek where the country began to change, granite beginning to make its appearance. Many cork trees *(Hakea lorea)* in full blossom were passed, and a fair amount of bluebush and cottonbush *(Kochia villosa).* Many tracks of kangaroos were seen, and wild dogs were numerous.

The following day we passed over fairly level country, thick mulga, a little grass but no bush, crossed several stony ridges, mostly covered with broad-leafed mulga *(Acacia kempeana)* and a few "cork trees." Saw for the first time large yards made of brush that were game-traps constructed by the natives, and were in some instances of great extent. At seven miles met with huge granite outcrops in the shape of boulders piled one upon the other, amongst which the native fig was growing. The eastern side of this granite outcrop was followed, and here was procured the "Pied Honey-eater" *(Certhionyx variegatus)* for the first time. Our camp at the end of the range was situated under a big mass of granite boulders amidst a thicket of bright flowering wattle trees *(Acacia doratoxylon)*, the flowers and leaves of which yielded a good many small insects, and some land shells were found amongst the *debris* at the foot of the fig trees. A great many rock wallabies came out at sundown on the western side to bask on the rocks heated by the afternoon sun. Amongst the granite boulders grew a beautiful shrub covered in a wealth of glorious blossoms, some of the bunches of which were 8 to 10 inches in length, of a light-cream colour outside and dark-brown centre. Various travellers and explorers seem to have identified this plant as *Tecoma australis*, but Mr. Black correctly thinks that this is a mistake, for the flowers and bunches are much larger than those of that species; and if it were *T. australis*, growing in such a dry country, it should be much smaller. Although it is often stated that the natives procure their spear-shafts from this plant, I never once (although hundreds of shrubs were examined) saw a stem straight or long enough for that purpose. It may be the plant throws up long shoots during good seasons. This shrub was never found upon the plains or level country, but grew amongst the rocks, from 10 to 15 feet tall, showing no signs of a creeping habit. It is gorgeous when in full flower, and the time of our visit seemed its flowering season, for hardly a plant was observed that was not covered with great bunches of flowers, and the ground beneath was strewn with quaint boat-shaped seed-cases of the previous season. Mr. Black places it as *Tecoma oxleyi*. Our course now lay north of west, and our caravan was soon swallowed up in a dense mulga scrub. Kangaroo tracks were very numerous, but the animals themselves were seldom seen. Reached a rough and rugged range at 4 p.m., and when on top sighted the Musgrave Ranges at sixty miles. The country now gradually sloped to the west, and from three to four miles we passed through saltbush and bluebush, with a little mulga, then big mulga appeared, with a great quantity of old dry grass amongst it. A bitterly cold wind blew from the east all day, but died away at sundown, and set in for a freezing night. Birds were very scarce in this country, still sufficient were obtained to keep us busy each evening.

Next morning found everything frozen hard. We were soon packed up, camels loaded, and on the move again, passing through thick mulga and dry grass; later more open mulga, with ironstone ridges, on which grew a quantity of bluebush. On the flats native willow (*Acacia salicina*) and a few cork trees grew. Passing over claypans and on to rising ground, which was covered in a mass of *Eremophila gilesii*, we camped in a dense mass of mulga.

When the boys came in with the camels next morning they reported having seen "big smoke" on the rocky range to the east, and added "Blackfellow bin makim fire." Passing on through dense mulga growing on reddish sandy loam, a good many bustards were seen where open patches occurred, but these fine birds were very wild. Smoke was seen rising from isolated masses of granite away to the north. At 2.25 p.m. our boys became very excited upon discovering the tracks of wild natives, and it was very noticeable that the boys did not talk to one another nearly as much as usual, and were keeping a sharp look-out all round them. Passed over undulating sandy country covered in mulga, and here and there a native willow. Reaching the top of the last sandhill, the Musgrave Ranges loomed up in all their grandeur, partly enveloped in blue mists. Huge masses of granite rose to the north of us on comparatively level ground. Emerging from mulga scrub on to open loose sandy country, came upon a fine rockhole containing several hundreds of gallons of water. Moving on a little distance from the water we camped, and spent a very cold night; everything frozen by the morning. Bird life was very scarce, also insects, but a number of botanical specimens were taken, amongst which was a new *Toxanthus* which Mr. Black has described as *T. whitei*, a most striking little plant with bright yellow flowers.

Leaving here we passed through large and dense mulga growing on low sandhills, then over hard red sandy loam, covered in dense mulga, all the lower branches of which were dead, and only the very top showing signs of life; everything in a very dry state, so that it crumbled away on being touched. Here there were numerous holes, excavated up to 4 feet deep, under the mulga trees, these having been made by the natives digging for the "Sugar Ant" (*Melophorus inflatus*). These insects are greatly relished by the natives, who pick up the insect with thumb and forefinger, placing the inflated abdomen in the mouth, which is bitten off, and the remainder of the insect's body is thrown away. Judging by the number of these holes the much-sought-after insect must be very numerous all over this country, and are called "woma" by the Everard natives. Coming out upon a large open plain we found it covered with a thick mass of porcupine grass *(Triodia)*; it was so thick that we had difficulty in getting the camels to face it. After about five miles of this prickly plant we entered the densest mulga we had yet attempted to penetrate; it was a difficult matter to find a place clear enough to camp upon. The night was bitterly cold, and everything was frozen hard. Birds were very scarce. A few blue grey-backed *Acanthizas* were the only ones found in the desolate scrubs, and this *Acanthiza* I have described as *A. marianae*. At this camping place another new bird was procured in the "Musgrave Flyeater" *(Ethelornis culicivorus musgravi)*.

Next day we wound our way amongst the foothills of the Musgrave Ranges, with the main range looming up to the north of us. It was most disappointing country, dry and dismal, hardly any animal life to be seen or heard till our camels climbed over a saddle in an outlying range and we descended into Glen Ferdinand. As soon as we crossed this ridge we found a great change in Nature's face; a wide valley swept down between two high ranges, the surface of the soil was covered with yellow and white blossoms of everlastings *(Myriocephalus stuartii)*, which were 8 to 10 inches high, in spite of the dryness of the sandy soil. Down the centre of the glen a creek found its way marked by fine redgums *(Eucalyptus rostrata)*. Bird life became at once more plentiful, and a bird was secured which appeared to be the "Grey-headed Honey-eater" *(Lichenostomus kertlandi)*, but later found it was a much brighter-plumaged species, especially on the throat, where the yellow was much brighter; the ear-coverts were also much darker. Many botanical specimens were taken, and we went into camp a few miles up the glen. The tracks and signs of natives were seen about, but they may have been of some time standing. Our boys would insist that "wild blackfellow a little bit close up." Subsequent events showed this was not the case, and only illustrates how unreliable in such matters the partly-civilized native is.

As we proceeded north, up the glen, it gradually became narrower; at first great masses of boulders, piled one upon the other, were dotted about like islands, and to add to their beauty many pines *(Callitris robusta)* filled up the spaces between the boulders, their thick bluish-green foliage forming a strong contrast to the red granite. At one place some pine pollen, carried on a gentle breeze, bore a deceptive resemblance to smoke. The glen became narrower as we went on till there was hardly room for the camels to find their way between the ranges on either side of the creek, till at last they had to take to the bed of the creek itself, which was thickly lined with ti-tree *(Melaleuca glomerata)*. Mount Ferdinand, 4,000 feet, towered above us. A great mass of old-man saltbush surrounded the tree marked by Ernest Giles, the explorer, in 1873; the "E. G." was plainly seen, but, unfortunately, the blaze on the tree faced south, and it was almost impossible to get a good photo. One of our greatest disappointments came to us here, for the waterhole marked "Ernabella" on the map, and which Giles said was permanent, and which Hübbe stated "would float a ship," was quite dry, and had been for years. There was a gumtree, five years old at least, growing in the hole which once contained water.

The party now broke up—two went in search of Harris Spring, which was found to be dry; our leader (Mr. Jack) and myself searched to the north without success.

Next day we followed down Tietkens Creek and dug out many soakages and native wells without finding any water. We now traversed a dense mulga scrub, and after another day reached the rockhole, the last water which we had left some time previously.

The following day after our arrival on this water our leader, with Mr. Rogers and a black boy, with three camels started off for the south side of the Musgrave Ranges. This enabled me to do some collecting amongst the birds, and numerous plants and insects were obtained; also some interesting photographs were taken of ants' nests, native shelters, and plants. While sitting at the rockhole late at night, out of the darkness came the unmistakable call of parrots; hopes were entertained that they were the "Night Parrot" *(Geopsittacus occidentalis)*. After flying round once or twice (they could not be seen, only heard) it was noted by the starlight reflecting in the water that they had settled on the edge of the rock. A shot was fired and one bird secured, which proved to be the "Blue-vented Parrot" *(Neopsephotus bourkii)*. It is probable that these birds come in after dark to avoid the hawks, which are always waiting round the waterholes for small birds to come in to drink.

Trouble in getting water compelled us to fall back on Moorilyanna Native Well, but there might have been another water no great distance off, for although birds were very scarce, a fine bronze-winged pigeon *(Phaps chalcoptera)* was seen, and these birds are never found very far from water. A large flock of "White-browed Wood Swallows" *(Campbellornis superciliosus)* passed over the camp travelling south. A little to the north-east of our camp, in a slight depression, was found a small clump of gum-like wattles *(Eucalyptus oleos)*, with very rough reddish bark a long way up the trunk and main stems. Several specimens of the southern "Yellow-fronted Honey-eater" *(Lichenostomus plumulus ethelae)* were found amongst these trees. Going slowly back through the thick mulga, a small party of Blue-vented Parrots was flushed from the dry grass; the birds were very shy, and only one was obtained, the others flew like arrows away for miles.

At last we reached the native well, and collected there for a few days. Upon Mr. Jack's return he reported seeing a small pigeon, which, from his description, appeared to have been the "White-bellied Plumed Pigeon" *(Lophophaps plumifera leucogaster).* A few wallaby skins were added to the collection. Some strange and interesting native paintings were seen and photographed, as well as a small cave which had been used for ceremonial purposes. It was decorated with paintings inside, and around the entrance numerous fires had been lit. Down the ledge of rock, in front, a mass of dried blood was adhering, which had every appearance of being human, and our boys said it was so.

We left this fine well on a south-westerly course towards the Everard Range, which could be seen in the dim distance. The first day we passed through a mulga and grass country, with rocky outcrops occurring very frequently. This class of country was decidedly poor and dry; very little was collected, and we camped amongst a vast mass of dead mulga.

Next day passed through dead mulga, and at 3 p.m. entered in between two high ridges; a large fire was seen out on the low country, showing we had entered upon the natives' district, and that there was water in the locality. Our leader took Williams and Bob, with two camels, and struck out north-westerly to examine a soak and rockhole in the heart of the ranges. Mr. Jack and party, in returning, struck our tracks and reached camp after dark, stating they had found a rockhole containing about 100 gallons of water, and from tracks they had seen they were sure that a native with his wife and one child were camped near the water, but hearing the white party approaching had made off. Mr. Rogers reported having found a freshly-built bower birds' playground in a deep gorge not far from our camp.

Next morning we paid it a visit and saw a beautiful male "MacDonnell Yellow-spotted Bower Bird" *(Chlamydera maculata macdonnelli).* Photographs were taken of the bower, which was neatly constructed beneath a native figtree, with a large heap of bleached snail-shells and a smaller one of green *solanum* berries outside the entrance. We passed great masses of rounded granite, quite destitute of vegetation, but in the cracks and gullies wild figs and other shrubs grew. On the southern aspect of some of these masses of granite quite a quantity of beautiful *Hibbertia glaberrima* grew, making a golden sheen with their bright-yellow flowers, and the pink flowers of *Ruelingia myniflora* were also very striking. Native tracks were very numerous, and only a few hours old in some instances, and although we had not seen any of the dusky inhabitants, there was not the slightest doubt we were being watched from the rocky heights.

Passing in between the main range we entered a very fine valley, 1,000 yards across at the entrance, with fine bold granite rocks on either side. Saw a pair of Crow-Shrikes, but in spite of all our efforts we failed to secure either of them. The valley we passed up was a lovely one, even after such a prolonged drought, and in a good season it must be very beautiful. A good many botanical specimens were collected before we camped at no great distance from Mount Illbillie (3,000 feet) amongst some fair-sized redgums.

Next morning we all went up to the rockholes to assist in watering the camels. There was a series of them, round holes worn out of the granite, and in times of rain the water ran from one to the other. We bailed from one hole into the other, and from the lowest one into the tarpaulin at the foot of the rock, which was situated in a narrow passage with high rocks on all sides and a narrow entrance. Many photographs were taken and birds obtained. Amongst the latter were honey-eaters resembling Keartland's bird, "Buff-throated Grass Wren" *(Diaphorillas textilis purnelli)*, which were most difficult to secure, as they seldom took to the wing, but passed from one bunch of porcupine grass to another like mice, their mottled rufous colour harmonizing so well with the red granite that it was most difficult to pick them out. Here there were some fine blood-wood trees *(Eucalyptus terminalis)* bearing fruit of exceptionally large size.

We passed out of these ranges to the west, and were just approaching a narrow neck where the ranges on either side converged towards each other, when we heard loud "yacking" calls, which greatly resembled those of a species of baboon found in Africa. Our boys answered the call, and in a very short time we saw a party of six natives running after us. They were armed with three or four single-barb spears each, a spear-thrower which they called "Mooro," a yam-stick, "Wanna"; also a food and water bowl, "Wera." They were finely-developed men, well nourished and developed, stood 5 feet 10 inches or over in height, and in almost a nude condition, for all that was upon their bodies was a thin twisted hair-cord round the waist, and eagle-down (either white or coloured with red ochre) attached to the pubic hairs, but in no way sufficiently, or is it intended, to cover the person. Their chests and arms were covered with red ochre, and a line of white down, attached by means of human blood, formed a half-circle, extending from one arm-pit to the other. The hair was tied back, in some cases forming a long chignon, and decorated with hawk's feathers *(Ieracidea berigora)*. Two of these men carried fire-sticks, which they waved to keep alight. They held a round green object between their lips, which at first sight appeared to be a green *Solanum* fruit, but afterwards was found to be a ball of native tobacco (a new variety named by Mr. Black *Nicotiana suaveolens excelsior)*, which stained their lips a yellowish-green colour; in fact, one or two of these natives had the liquid running down the corners of their mouths and over their lips, giving them a decidedly savage appearance. After taking some photographs and giving these natives some presents, we moved on, with them in close attendance. As soon as we got outside the neck they began firing the porcupine grass, and, upon making enquiry, signified by signs that they were letting their people know in which direction we were travelling.

We were following a fair-sized creek, sometimes along the dry sandy bed and at others through great masses of porcupine grass (commonly but erroneously called spinifex). This has proved to be a new species, and will be found in Mr. Black's paper under *Triodia aristata*. Redgums lined the dry watercourses, but not one was of any great size. This class of country continued till we got clear of the main ranges, when we left the creek and struck out over level country covered by mulga, with high rugged detached hills, on which grew porcupine grass. During the afternoon our course was through similar country, in which innumerable holes showed where the natives had been digging out the sugar-ants. When these holes were pointed out to the natives, who were in close attendance, they would nod their heads and say "Woma," meaning sugar-ant. While out collecting during the day I was followed all the time by several natives, all in single file, who placed their feet in my footprints, and thus avoided the prickly-burrs which strewed the sandy soil, as my boots had the effect of pressing the sharp thorny seeds deeply into the sand. The natives drew my attention to any object of interest by a "hm, hm," sounded through the nose, and on looking round the nearest native pointed to a high point in the range and said "Carmeena" (the name of the mountain), and pointing downwards, meaning at the foot, repeatedly said "Carmen," meaning tobacco, which was growing at the foot of the range. Another time he pointed to a rounded hill and said "Punderanna coppe," the last word meaning water. At other times they pointed to a dog's tracks in the sand, with the "hm, hm" again, adding "papa," meaning wild dog. In one case, when they wished it understood that the dog in question had pups, and their meaning was not at once grasped, one native went down on all fours, and tugging first at one nipple, then at the other, to show that it was a she-dog suckling young. Towards evening some of the natives became very excited, calling "Teeta," "Teeta," "Coppe," and going in the direction they indicated, through a dense mulga scrub, a high turtle-backed hill (like the half of a huge granite boulder thrust up through the sandy soil) was reached. The natives made for the steep side of the granite rock, and with their bare feet soon climbed 12 or 15 feet up, and throwing themselves down upon the rock were soon drinking from a rockhole, several feet deep, fed by the sloping sides of the great granite mass.

Next morning I paid a visit to the natives' camp. They were a splendid lot of fellows, good tempered, civil, and without a doubt very well disposed towards the white man. Some photographs were taken, and many little presents bestowed, before they left to go back to their own district, which seemed to be the north side of the Everard Range. One man only went on with us; he was a really fine specimen, about 40 or 45 years of age, some 6 feet in height, broad-shouldered and well nourished, good tempered, and always anxious to explain any matters of interest, and I could not move anywhere without being followed by him. His quick eyes could pick out a bird, mammal, or insect long before mine. To see his lithe, nude body passing noiselessly through the scrub, every muscle working to perfection, was an interesting sight, especially when in the attitude of stalking game.

Making a start from "Teeta" rockhole we took a westerly course between two high and rugged granite ranges, and before long were making the best way we could through very dense mulga. After rains great quantities of some plants, bearing edible seeds, must be prevalent through this country, for large grinding-stones belonging to the natives were seen in many places; so large, indeed, that they must have given considerable trouble to carry. We walked for hours through the dense mulga and never saw a living thing. At 5 p.m. we emerged from the mulga country into a sandhill country, with thick mulga on the flats, some of the trees being of fair size. Bird life, and indeed all other kinds of life, were very scarce in this region. *Cinclosoma castanotum dundasi* was met with for the first time, and seems only to be found in the sandhill country. Continuing on our westerly course the sandhills became more pronounced, and were covered with thick scrub in places. A beautiful little heath-like shrub, *Thryptomane maisonneuoii*, covered with small flowers (dark-red and white), made its appearance. There are three species of mulga *(Acacia)* growing on this sandy ground, but unfortunately the state of the country was so very dry that few of these interesting shrubs were in flower. When crossing a higher sand-ridge than usual, a dark line showed up in the distance crossing our course from north to south, and our field-glasses showed it to be a bank of redgums, a feature that always marks one of the watercourses in that country, and this one could be none other than the Officer Creek, which has its source in the Musgrave Ranges, and winding out into the sandhill country loses itself amidst the dry sandy plains to the south. The sandhills took us right up to the Officer Creek, but the country improved somewhat before reaching its dry bed, and quite a crop of everlastings *(Myreocephalus stuartii)* lined the banks. Our camels were continually breaking their nose-lines as they made frantic attempts to get a mouthful of them as they passed along. Our leader followed the dry watercourse towards the Musgrave Ranges. The banks of this river only average 5 or 6 feet in height, and the absence of logs or large deposits of *debris*, as well as the very fine sand in the bed, would lead one to suppose that during flood-time there would not be any fast-running stream such as there is at the same distance from the MacDonnell Ranges, this being due no doubt to the level nature of the country through which the Officer runs. The first night we spent on this course was near a native well in the bed of the river; the sand had been thrown out for several feet, but there was no water in it. After the camels had been unloaded our leader, with other members of the party, put the well down much deeper, when a little water was obtained, but not sufficient to water the camels. Birds were much more numerous along this watercourse, and during our journey along it quite a number were secured. Many indications were seen of natives having visited this locality. On the day we left the Officer Creek to go east the wild native from the Everards pointed along the ground, east and west, where the camel-pad made by the Elder Exploring Expedition, twenty or more years previously, could be plainly seen. The country was in a very dry state, and not a drop of water existed anywhere.

We had now reached our furthest west, and the sun went down at our backs that night for the first time on our homeward track. Our course took us over low sandhills and through thick mulga scrub till we sighted some isolated masses of granite, which indicated that we were approaching the Everard Range again. Following a long outlier from the range we tried to get through a gap with the camels, but failed. A northerly course was then taken, and we camped on the most north-westerly corner of the Everard Range. This camp is very fresh in the memory, for it is a most picturesque spot, situated on sloping ground, with a great mass of red granite as a background on the south and east; but away to the north and west the view was most extended, in which direction we looked over a sea of sombre-coloured mulga scrub, with granite outcrops in the forms of great red boulders here and there in the foreground. Away to the north and west the fine Musgrave Ranges loomed up on the skyline in a mass of purple mist. After finding an opening through the range we travelled south amidst most picturesque scenery till we reached the turtle-backed rock of "Teeta" rockhole. Being anxious to work this locality, and also spend some little time with the natives learning something about their customs, it was agreed that I should remain on the waterhole for a few days, then move on to Carmeena rockhole to meet Mr. Jack.

The days spent rambling through the ranges with my native companion were very interesting on account of the grand scenery, the solitude, and the expectation each day of finding something new. Enough also had been learned of the natives' ways and language to understand my aboriginal companion fairly well. He took me to ceremonial grounds and explained many of their ceremonies, as well as plants, insects, birds, and many other things, till the time came to move on to Mount Carmeena. The native now took the lead, and passed down a wide valley or plain thickly covered in mulga between granite ranges. I wanted to push on to where the map showed the waterhole, but the native insisted that I was passing the water, and said most emphatically "Carmeena Coppe," and proceeded to a fine series of rockholes. Just at the foot of the rockholes a great mass of giant tobacco grew. Some of these bushes were from 5 to 6 feet high, and all out in a mass of white flowers. Mr. Black has described this plant as a new variety of *Nicotiana suaveolens*. Typical specimens of *N. suaveolens* were taken within a short distance of the giant variety, which not only has a different growth, but the leaves are of a different texture. Near these rockholes there were some very fine bushes of *Acacia strongylophylla* which were in full flower. Over low bushes and down rocks a creeper with scarlet berries, *Melothria maderaspatana*, made a beautiful show. On one side a great mass of native figs (some trees of very large size) made quite a pretty arbour, amidst which camp was made. The native now set about fulfilling a promise to collect as many of his countrymen and women as possible, and straight away sent up smoke signals.

It was not very long before about thirty men put in an appearance in answer to the smoke message. He was very proud to be able to introduce me to his people, and lined them up to be photographed. There were some men well up in years, but not very old men; men in their prime down to children eight or ten years of age. All these natives were well grown and nourished; some were exceptionally tall, many being 6 feet or over in height.

The next day I went out hunting with a party of the natives, which seemed to please them very much, and obtained their confidence to that extent that they sent for some of their women folk, and the following day, under escort of three of the elders of the tribe, was permitted to pay a visit to the women's camp. There were sixteen women of varying ages and a few small girls. The women were from the ages of eighteen or twenty to forty-five or fifty, but no aged ones. Some photographs were taken and presents made, the children much enjoying the sweets given them. The women, like the men, wore no clothing, and there were several children in arms—all females with the exception of one. All those women who had no children carried a live wild dog round their waist. Several evening entertainments or corroborees were given by these natives, some of which were of a very weird nature. The stay at the foot of Mount Carmeena was all too short; still the country for many miles round was well worked, yielding much in bird and botanical specimens. For the first time specimens of the Crow-Shrike were obtained here; the bird is a large one, with a very strong bill. From all appearances it comes between the western form, *Neostrepera versicolor plumbea*, and the Eyre Peninsula one, *N. v. intermedia*.

Our party being re-united we travelled east, between great parallel masses of granite; the plain between was covered (in some places very thickly) with mulga, and here and there a few cork trees. In places redgums appeared marking the short course of a creek as it came out of the ranges. We were escorted by a number of the natives. The remainder, with their women folk, had gone off in another direction. We at last left the ranges and plunged into dense scrub. While amongst the ranges the mulga was fresh and healthy, there were many green bushes amongst the rocks, and many comparatively open spaces; but as soon as we left the ranges the mulga became very dense—a great part of it was dead, and that which still lived only showed life at the extreme top. All the natives, with the exception of three, departed when we left the ranges behind, and these were sent back after two days. It was quite sad saying good-bye to the last of these simple-minded people who had been so very friendly and well disposed towards us, especially the old man who had followed me over so many miles of country and given so much information.

The weather had been changing for the last few days, and summer began to make itself felt, the heat being distressing in the dense scrub. Passing over sandy country covered in thick mulga, we at last sighted Schneider Hill, when our course was changed somewhat, and we passed through a very dense scrub, where little or no bird life was to be found. Very soon Chambers Bluff, in the Indulkana Range, came in sight, and Mount Johns could be seen in the blue mists to the south-east. We still struggled on through dense, dead, and leafless mulga till we crossed the Ammaroodina Creek, when the country became more open. As soon as we reached the tableland country the birds became more numerous; it was not long before *Aphelocephala pectoralis* and *A. nigricincta*, also *Calamanthus campestris isabellinus* were met with, as well as many more common species. One night at 9 p.m we went into camp at Wantapella Swamp.

Leaving there we took a northerly course till we struck the Indulkana Creek All this country was in a very dry condition; vegetation consisted of stunted mulga, needle bush *(Hakea)*, cork trees, and *Grevillea.*

For the first day or two we followed the dry sandy bed of the Indulkana Creek, then our course took us away from it at times to strike it again at a bend. Bird life—in fact, all animal life—was very scarce through this country. Passing to the north of Mount Mystery and following the Alberga at a distance we reached the Lambinna Native Well. We travelled along very quickly now, which gave little time for collecting, yet we were successful in securing a few specimens each day. We were most kindly received at Todmorden cattle station by Mr. and Mrs. Breaden.

I left next morning at daylight with Mr. Breaden to drive into Ocdnadatta, reaching the head of the railway line the same day, arriving home on September 3.

Taking into consideration the great dryness of the country (a fall of rain not having taken place for at least nine years), and the fact that bird or other life is never numerous at the best of times, my work was very successful. I have the honour to be the first to make an ornithological reconnaissance of the Far North-west of South Australia. The expedition yielded ninety-four species of birds, of which five are new.

In spite of the dryness of the country I was able to collect nearly 200 species of plante, which have been dealt with by Mr. J. M. Black, who has described many new to science.

Owing to the prolonged drought mammals were scarce; those collected have been dealt with by Mr. Edgar R. Waite.

Reptiles were not nearly so numerous as on our expedition of the previous year; the selection secured this time has been worked out by Messrs. Waite and Zietz.

The work in connection with the insects has been undertaken by Mr. Arthur M. Lea and others. In this branch there is much new to science. Out of thirty species of ants collected, something like twenty are new species or sub-species.

There are also many new spiders in the collection, which have been worked up by Mr. W. J. Ranibow, of Sydney, some of which are of special interest.

To all the above-mentioned gentlemen my sincere thanks are due for adding to the value of this work.

In conclusion, my thanks are tendered to the leader of the expedition (Mr. Jack) for many kindnesses shown and assistances rendered during a very arduous journey through an almost waterless region. I pay a very strong tribute to my assistant (Mr. J. P. Rogers) for the great interest he took in the work and for his loyalty under very trying circumstances occasioned by the great drought.

The whole of the collection, with the exception of the birds, has been donated to the South Australian Museum.

DESCRIPTION OF PLATES.

PLATE XLIV.

Map (facing page 707) of South Australia showing area collected over by S. A. White.

PLATE XLV.

Map (facing page 707) showing route traversed with the Geological Survey Expedition.

[*The following plates are from photographs taken by S. A. White.*]

PLATE XLVI.

Fig. 1.—Glen Ferdinand, Musgrave Ranges, looking southwest.

Fig. 2.—Undulating sandy plain, with the Musgrave Ranges in the distance—Mount Ferdinand the highest peak.

PLATE XLVII.

Fig. 1.—Glen Ferdinand, with creek and the Pinnacles (Musgrave Ranges) in the distance.

Fig. 2.—A ridge in the Musgrave Ranges covered with *Triodia aristata*—the home of the Buff-throated Grass-Wren.

PLATE XLVIII.

Fig. 1.—View in the Everard Range, near its centre, looking east.

Fig. 2.—View of the Divide near the head of the main valley of the Everard, near Mount Illbillie, looking west.

PLATE XLIX.

Fig. 1.—Main Valley of the Everard Range (as in fig. 2, pl. xlviii.), but looking east.

Fig. 2.—Carmeena rock-holes, at the foot of Mount Carmeena. Carmen is the native word for tobacco, and the locality takes its name from a patch of the native tobacco plant which is seen in the foreground.

PLATE L.

Fig. 1.—Near view of one of the rock-holes shown in the preceding (pl. xlix., fig. 2).

Fig. 2.—Watering camels at a rock-hole in an isolated granite boss, Everard Range.

PLATE LI.

Fig. 1.—Watering camels at rock-holes, near Mount Illbillie, Everard Range.

Fig. 2.—Nearer view of rock-holes seen in fig. 1.

PLATE LII.

Fig. 1.—Centre rock-hole in the series of rock-holes as above in fig. 1, pl. li.

Fig. 2.—A group of aboriginals in the Everard Range.

PLATE LIII.

Fig. 1.—Aboriginals signalling from the summit of granite boss shown in fig. 2, pl. l.

Fig. 2.—Aboriginals of the Everard Range decorated with down of the eagle.

PLATE LIV.

Fig. 1.—A group of aboriginals in camp, Everard Range.

Fig. 2.—An aboriginal who voluntarily accompanied the Expedition through the Everard Range.

PLATE LV.

Fig. 1.—An aboriginal of the Everard Range throwing a spear.

Fig. 2.—An aboriginal using the *mira* in throwing a spear.

PLATE LVI.

Fig. 1.—A young man of the Everard Range tribe.

Fig. 2.—An aboriginal with head-dress decorated with hawks' feathers, Everard Range.

PLATE LVII.

Fig. 1.—Aboriginal boy of the Everard with reed penetrating the septum of the nose, this being the first stage in the rites of initiation.

Fig. 2.—A group of aboriginal women of the Everard Range, showing the strange practice of nursing the dingo.

PLATE LVIII.

Fig. 1.—Middle-aged woman of the Everard Range tribe.

Fig. 2.—Middle-aged woman of the Everard Range tribe. At the side a mother is seen giving her child the breast.

PLATE LIX.

Fig. 1.—Young mother nursing her first child.

Fig. 2.—Young mother with baby.

PLATE LX.

Fig. 1.—Little girl of Everard Range tribe.

Fig. 2.—A cave in the granite used as an aboriginal rock-shelter, Everard Range.

PLATE LXI.

Fig. 1.—Natives' shelter in the mulga scrub, Musgrave Ranges.

Fig. 2.—Native paintings on granite rock at Moorilyanna Soak.

PLATE LXII.

Fig. 1.—A ceremonial cave containing native drawings, and the entrance covered with dried layers of human blood.

Fig. 2.—The cork tree *(Hakea lorea)*.

PLATE LXIII.

Fig. 1.—The native fig *(Ficus platypoda)*.

Fig. 2.—The native tobacco tree *(Nicotiana suaveolens)*.

PLATE LXIV.

Fig. 1.—A group of *Senecio magnificas*, growing near Carmeena rock-hole, Everard Range.

(*b*) THE ABORIGINES OF THE EVERARD RANGE.

By S. A. WHITE, M.B.O.U.

The Everard Range is situated about 300 miles west of Oodnadatta, and extends from east to west for about fifty miles, the western end nearly reaching to Officer Creek. It consists of ridges and isolated boulders of granitic rock, of a reddish-brown colour. Mount Illbillie (3,000 ft.) is the highest point. Fine wide valleys intersect these high ridges, and amongst the rocks large rockholes are to be found, capable of retaining water for some considerable time.

In and around the range dwells a fine race of people, well grown, well nourished, and well disposed towards white men. It is divided into many parties, or tribes, each one having its own allotted district. Owing to the nature of the country and the great dryness, also the uncertainty of food supply, these tribes are broken up into still smaller parties, which in some cases were not more than a man and wife with one or two children. Nothing has been written, as far as I can ascertain, about these people, with the exception of that by Mr. Richard Helms, who accompanied the Elder Exploring Expedition, 1891-2, and he only speaks of seeing two or three Everard men when passing by the ranges. So I hope the following notes may be of scientific interest.

Quite a number of both sexes and all ages were met with, and I was able to spend several days (without any white companion) in their camps, which enabled me to gather much information that otherwise could not have been obtained. Both men and women were well grown and nourished. Most of the men bore many scars upon the chest, shoulder blades, back, and arms. The women also have these scars, but in a lesser degree. Both sexes are destitute of covering, moving about in a nude state; the men very often have a twisted hair-cord round their waists, which acts as a means of carrying small articles, and also when drawn tightly round the body will reduce the pangs of hunger. They do not try to cover the person in any way, but the men, both young and middle-aged, were often seen with eagle-down twisted into the pubic hairs; in some instances it was left the natural colour, while in others it was stained with red ochre; this ornamentation did not in any way cover the penis, nor was it intended to do so, I am sure.

The young bucks spend much of their time in the braiding of their hair, which is drawn tightly back from the forehead, then done up in a chignon and bound tightly together with human-hair string, often being decorated with brown hawks' feathers. This chignon stands out ten or twelve inches at the back. In most cases the women's hair was fairly short; this being due, most likely, to their having to supply the material for hair string. In many cases the young women brought the hair forward and tied it up in a small knob over the forehead, with many bands of hair string bound round and round the head.

It was very surprising to find that many of the women carried live wild dogs round their waists—the fore paws and nose being grasped in one hand, while the hind paws and tail are in the other; the extremities of the dogs, in some cases, almost meeting in front. As far as the limited knowledge of the language would allow, it was ascertained that all women who were barren or had ceased bearing children were required to nurse a dog in this way.

There were a good many children in arms, which were all females with the exception of one; these children, as well as others of various ages, were all well nourished, being plump and jolly.

All the men are circumcised after the age of about eighteen or nineteen years. One example of slitting the urethra came under notice, but this does not seem a regular custom. They all have the septum of the nose pierced, to carry the wing-bone of a bustard or an ornamental stick. This operation is performed at a very early age (see pl. lvii., fig. 1), and seems to be the starting-point at which the initiation rites begin. No very old men or women were seen, nor were there any cripples, and every effort failed to gain information as to what becomes of the aged members of the tribe, for they avoided every question put to them and showed a strong dislike to discuss the question. I am strongly of the opinion that they kill and eat their old people and destroy all deformed children. They are very fond of relating how the Musgrave natives (for which they show great fear and call "Mamoo," always repeating the word in an awe-inspiring tone) have killed and eaten their men and women, and great pains were taken on one occasion to point out where one of their women and a child were killed by the "Mamoo," and a short way off the ashes of a fire were shown as the place where the woman and child were cooked and eaten. There were some particles of bones about, but if human or not I could not say. There is no doubt in my mind that they do eat one another.

Many of the women were of quite graceful form, and the distended abdomen, so common amongst the Australian natives, was almost absent amongst these people, showing that their food supply must be regular and good.

The men smear their bodies with red ochre, and the young bucks have their chests decorated with the white down from the wedge-tailed eagle in the shape of a crescent, which extends from one armpit, round the chest, to the opposite armpit; the down is stuck by the agency of human blood.

The men use the native tobacco (*Nicotiana suaveolens*, var. nov. *excelsior*),(1) which grows very abundantly in one locality at least. The leaves of this plant (which often attain the length of 8 to 10 inches) are rolled up into a ball and used as a narcotic, allowing it to rest between their lips and turning it over occasionally by means of the tongue, which causes a yellowish green juice to cover the corners of the mouth and lips. The women were not seen using it at any time.

Weapons and Utensils.—The principal weapon is the spear, called "ooruta," which is mostly of a single barbed variety, the head, which is attached to the shaft by means of tendons and sinews, is flat and made from mulga wood, with a curved tooth or barb of the same material, also bound on by means of sinews; the shaft, which is nearly always in two pieces, is from 9 ft. to 9 ft. 6 in. long. They hunt the kangaroo, wallaby, and rabbit, etc., also fight, with this spear.

---

(1) See Mr. Black's paper on Botany, p. 835.

A thick mulga stick is also carried, called "wanna." This is from 2 ft. to 3 ft. long, sharpened at one end and hardened by fire, and is used for many purposes, but principally for digging out food. They use a small wooden food-and-water bowl, about 1 ft. long by 3 in. or 4 in. broad, called "wera"; more often it is used as a scoop to remove earth and sand, after it has been loosened by the "wanna," when in search of rabbits, lizards, etc. A spear-thrower, which they call "mira," is very different to any other I have ever seen. It is deeply concave on the upper side; in this hollow the spear rests. The peg or tooth which takes the weight of the spear when thrown is bound on by sinews and resin. At the handle-end a piece of flint, of a chisel shape, is cemented in very firmly by means of porcupine grass resin. All these articles were carried by the men. Boomerangs are not made or used by them. A large food-and-water bowl cut out of wood, called "mika," is used by the women, and is generally large enough to hold a big child; the children are often placed in these large wooden dishes or bowls and then stuck up in the fork of a tree, with a bunch of leaves over the top to keep the sun off the child while the mother hunts for food.

Food.—The supply, even in the Everard Range (which is a rich country compared with some), must vary considerably. Kangaroos are plentiful in some districts. These animals shift about according to rainfall. Amongst some of the great piles of granite rocks, as at Moorilyanna native well, rock wallabies are numerous, and the favourite time for the natives to hunt them is just after sundown, when the marsupials come out on the rocks, which have been heated by the afternoon sun. Emu eggs in season yield an excellent food. Numerous species of lizards are prized by the natives as an item of food. Nearly all their food is cooked in their usual excellent manner—namely, in the sand, which retains the full flavour of the game. Of vegetable foods I saw little, owing to the prolonged drought; but in good seasons there must be great quantities of edible seeds, for large grinding-stones are found very frequently all over the country near the ranges, and by their concave surfaces they must have been used for grinding purposes for many years. The fruit of the native fig *(Ficus platypoda)*, and called by the natives "Elie," was eaten by them. The wild dog, or dingo, is much relished by the natives as an article of diet, and rarely an old camping-ground came under notice without there being many dingo skulls and bones scattered around; yet the natives domesticate and fondle over their dog pets. Sugar ants *(Melophorus inflatus)*, called by these natives "woma," are much relished. They dig large pits up to 4 ft. or 5 ft. deep in search of the ants; grasping them by the forepart of the body they bite off the inflated abdomen, which contains the sweet fluid. One of their, if not the chief, foods is their "margu," being the larvae of a big moth found in the roots of the broad-leafed mulga *(Acacia kempeana)*. The natives seem to detect the grub at the roots by the foliage of the tree, and at once strike the ground with their pointed stick, "wanna," to find the position of the root. Having ascertained this, they soon loosen the earth around and thrust the pointed end of the stick under the root and pressed up sufficiently to be grasped by the hands and forced away from the stem, and at the junction of stem and root the large grub is invariably found. It is sometimes eaten raw by biting off the head and squeezing the contents into the mouth, but they are more often placed in the hot ashes for a few minutes, when the skin is roasted like parchment and the contents attain the consistency and colour of the yolk of an egg, and is of a nutty flavour.

Water supply.—During good seasons no doubt there are many clay-pans and swampy places, also temporary streams, which would allow the natives to hunt over a large extent of country; but in dry times, such as it was during this expedition, they are dependent on rock-holes and native wells, the latter being rare and generally shallow dug-outs close to shelving rocks, the catchment holding the water under the sandy soil. The rock-holes are a great feature of this granite country, many being large cisterns, capable of holding hundreds of gallons, while others would only hold a pint or so. To prevent birds and other things getting into the water the natives put boughs and sticks into it, which often discolours and gives the water a bad taint; in some instances sand is placed in the holes to prevent evaporation.

Native Art.—If anyone could see these natives decorated for ceremonial purposes it would be admitted at once that they possess much decorative skill, the lines upon their bodies being beautifully executed and some of them of striking design. Their rock paintings are very strange, and if the language had been better known much interesting information in connection with these could have been obtained. Red and white were the principal colours, but often designs were made in black. Emu tracks are very often reproduced, also the rough representation of the human form; one painting was described to me as a hunting sketch, the emu tracks representing a bird going in a certain direction; then other tracks having been seen an old and a young man had gone one way, while an old man and two young ones had gone another way, this painting having been executed to depict a certain hunt.

Personal characteristics.—They are a good-natured, happy-go-lucky people. Of course, their characters are as varied as those of the white race; there are cheerful as well as sullen individuals. But, taking them on the whole, they are a happy people, extremely fond of their children; two or three big children have often been seen to throw their arms around their mother and caress her. The men give up much of their time to entertaining the boys and girls; but whatever the amusement may be it is always in the form of an educational matter. For instance, at night they will smooth the sand down in the firelight, and a man will make different tracks of birds, mammals, insects, etc., with a piece of stick, then there will be a guessing competition, and if one of the youngsters make a "howler" they will all chaff him about it. At an early age the girls follow their mothers out hunting for food, and are soon drawn into the almost incessant work of food hunting, which is looked upon as a woman's work. The boys follow their fathers, and when quite young are started to make toy spears and trained how to throw them, the favourite target being a white ants' nest or hill. These dark reddish-brown masses of clay have been seen covered with shattered spears, their points having pierced the hard outside covering. Their hair is dark and coarse; some long and vigorous beards were seen, yet in some instances the face was almost destitute of hair. Some of their bodies were very hirsute—legs, arms, and chests being covered with long dark hair. They sleep upon the bare ground in a row, with a small fire between each pair; more than twenty have been seen in a line, thus one fire does for two men. They were quite without covering, and the fires required replenishing every little while throughout the night. One of the natives who accompanied us acquired some cast-off clothing, and he was seen wearing it all through the heat of the day, but when the severe cold set in at night, and he lay down between two fires, he divested himself of all clothing.

Shelters.—During wet or inclement weather shelters are put up, principally for the mothers and young children. This is done by placing two forked sticks together, with a third leaning away from the weather side, forming a triangle; against this boughs are placed, then porcupine or other grasses are heaped up. Many of these shelters are seen in different stages of decay near good watering-places, but never close up to the water, for the natives always form their camps out of sight, if possible, so that they do not disturb the game or reveal their presence to other natives. Many travellers say that these shelters made by other tribes are not used the second time, because it is easier to construct new ones; this has not been my experience, for I have always found that superstition has been the chief cause, and have been told time after time by the natives that as soon as they vacate a dwelling the evil spirit takes up his abode therein, and they cannot be induced to enter the shelters again under any consideration.

Fire Sticks.—They always carry a lighted stick, or one or two if there is a large party on the move, taking it in turns to carry the torch, which is swayed about to keep it burning. This points to the fact that the process of making fire is a difficult one, and that they go to great pains to avoid it. Upon being requested to make fire, an old native took his spear-thrower and struck a piece of hard stone with the chisel-shaped flint attached to the handle-end of the "mira"; sparks were certainly produced, but he had no tinder, nor did he show how the sparks were caught. Many of the men and women had large scars upon their bodies, in some instances quite raw ones were seen upon the children. Upon making inquiry, it was found that this was caused through the agency of fire by rolling on to the embers during sleep.

Ceremonial Dances.—I was present at several of these, which were quite new to me, not having seen the same performances with any other tribe. One had only three dancers (young men of twenty-five to thirty); their hair was bound up with hair string and protruding a great distance at the back, being decorated with hawks' feathers; their bodies were reddened with ochre, and two half-circular lines of white down from the wedge-tailed eagle adorned their chests; large tufts of white down were attached to the pubic hairs, a wand was carried made from a straight gum-bough, and was about 4 ft. 6 in. long, a bunch of leaves being left at the top, and from that down the bark was stripped off clean, the bare wood being smeared with human blood, and evidently while the blood was wet three rings of white down had been stuck on. The women, men, and children sang a low, monotonous song, almost in a whisper at first, but after a time it swelled in volume and became louder and louder, many of the singers keeping time by beating the ground with their short-pointed sticks. When the song had reached its highest pitch the three performers dashed out of the scrub (which was wrapped in darkness) into the bare space in front of the fires and singing loudly, keeping time by stamping the ground with great force with the right foot. They stood in the same place for some time, and soon had a hole stamped in the sandy soil 8 in. or 10 in. deep. The song died away in cadence and became lower and lower. The performers had been facing the east; they now turned to the west, still stamping vigorously, this time with the left foot. When the song had died down to a mere whisper the performers rushed back into the darkness. This was repeated many times, and the last time, when the chanting or singing had died gently out, the men lay flat down with their faces to the ground, and this was the *finale*.

In conclusion, I must say that the Everard natives are the finest that it has ever been my fortune to meet, but the hundreds of miles of arid country will not protect these fine people much longer, for white men are pushing further out each year, and will very shortly come in contact with this wild race; then customs, traditions, everything, will be lost beyond recall. All this information should be obtained before it is too late.

Language of the Everard Range Tribe.

By J. M. Black.

A small list of words in the language of the Everard Range natives was compiled by Capt. White, and has been entrusted to me for phonetic expression. The difficulty of obtaining the words was considerable, because the tribe is quite untouched by white influences and knows no English. A black boy from Oodnadatta and another from the Alberga, who accompanied the expedition, were useless as interpreters. The only word which they seemed to have in common with the Everard men was wi:rɑ, the wooden bowl for food, and this discovery created surprise on both sides.

The alphabet used is that of the International Phonetic Association, and the characters which require explanation are as follows:—

u when long, sounds like *oo* in "boot"; when short, like *oo* in "foot."

ɔ is the English *o* in "not."

ɑ when long, is the English *a* in "father"; when short, it is the Scottish *a* in "man."

a is a sound half-way between *a* in "father" and the English *a* in "man"; it is the French sound which is heard long in "page" and short in "patte."

ə is the English sound heard in "butter" [ˈbətə]

e sounds nearly as in the English "they."

ɛ is the open English *e* in "bed."

i is a close sound very nearly equal to English *ee* in "meet." It may be long or short.

ì is the open sound heard in English "fit," "very" [fìt, veri]. It is always short.

ai = *y* in "my."

A long vowel is indicated by the sign [:] placed after it, but it should be remarked that the vowels here, as in other Australian languages, differ rather in quality than in quantity; that is to say, they are distinguished rather by their articulation than by their length. The stressed or accented syllable is indicated by the sign ['] placed *before* it; so that, for example, the accentuation of the English words "instance" and "exact" would be shown thus ['instəns, ɛg'zækt].

Of the consonants it need only be said that j = English *y* in "young"; ŋ = *ng* in "singer"; θ = *th* in "thin."

al'k*a*k*a*, general name for ant.
andə'grìnìjə, name of one of the clans of the tribe.
'bi:*a*, snail-shell.
'dìrìkìn, brown hawk *(Ieracidea berigora)*.
'e:bo, stone.
'ɛlgə, wireworm (Larva of *Tenebrionidae*, sp.).
ge'rəŋkìbì, black-eared cuckoo *(Owenavis osculans)*.
'i:bru, rock-pigeon *(Lophophaps plumifera leucogaster)*.
'i:bi, breast.
'i:lì, native fig-tree *(Ficus platypoda)*.
'impu, trap-door spider.
'k*a*pì, water.
k*a*'titi, teeth.
'k*a*m*a*n, giant tobacco *(Nicotiana suaveolens*, var. *excelsior)*.
'kaljə, emu *(Dromoeus novae-hollandiae)*.
'kulbì, rock-painting.
kɔm'pɔmbərì, cockroach *(Anamesia lindsayi)*.
kɔn't*a*lt*a*bu, ant lion *(Myrmeleonidae*, sp.).
'mair*a*, hand.
mai'θondə, spinifex snake *(Demansia modesta)*.
'm*a*gu, large grub found in the roots of mulga (often called "witchita," after its name in another aboriginal language).
m*a*'mu:, the Musgrave Ranges tribe (of whom the Everard tribe express great fear).
mai'lalərìlì, blue wren *(Malurus melanotus callainus)*.
'mə:bain, kangaroo *(Macropus rufus)*.
'mìnì'mìnì, white-face *(Aphelocephala castaneiventris whitei)*.
'mìlgən, sharp bone used as a needle.
'mìlkə, red-backed ground thrush *(Cinclosoma castanotum dundasi)*.
'mu:kì, mouse.
'mu:ru, spear-thrower (wommera).
mu:rə'dìŋvə, small striped lizard.
'nokəm, egg.

'p*a*np*a*n, fly (insect).
'papa, dog. (When emphasis was laid on this word, in pointing to the animal, the vowels were lengthened [pa:pa:] and equal stress was placed on both syllables.)
'pə:lìn, thrush *(Colluriocincla rufiventris whitei).*
pi:lɛl, black magpie *(Strepera,* sp.[?]). Evidently an imitation of the bird's cry. The two syllables have almost equal stress; the first has a rising tone, the second a falling one.
'pìlbəm 'pìlbəm, singing honey-eater *(Meliphaga sonora).*
tɛl'bəŋgì, white-eyebrowed wood swallow *(Campbellornis superciliosus).*
tɛŋ'gilì, grass wren *(Diaphorillas textilis purnelli).*
titi' *ara*, spiny-cheeked honey-eater *(Acanthagenys rufogularis cygnus).*
ti'ti:ɘ, rockhole.
tu'təmbì, rock lizard *(Amphibolurus rufescens).*
'tu:klìg*a*, *Acacia strongylophylla.*
'θadì, common spotted lizard *(Amphibolurus reticulatus).*
u'ru:t*a*, spear.
u:w, yes.
'w*a*n*a*, yamstick.
'w*a*lj*a*, head.
'w*a*ru, fire.
'w*a*t*a*, spearhead.
'wi:r*a*, wooden bowl.
'wɛld*a*, wedge-tailed eagle *(Uroetus audax).*
'wɔtərìlì, yellow-throated minah *(Myzantha flavigula).*
'wɔm*a*, sugar ant *(Melophorus inflatus).*

Some of these words are the same as those collected by R. Helms during the Elder Expedition of 1891 among the tribes of the Everard and Blyth Ranges, who evidently speak the same language. For purposes of comparison these words are given in Mr. Helms' spelling:—pia, shell (this evidently = bi:*a*, given above for "snailshell"); ibi, breast; kapi, water; karditti, teeth; kaleya, emu; kulbi, rockpainting; kumbumberi, cockroach; maira, hand; meru, spear-thrower; nokum, egg; papa, barking of a dog; wanna, yamstick; wera, wooden bowl; wilda, eagle; ō, yes. The difference of meaning given to the word "papa" is curious, but some light is thrown on the subject by the vocabulary of the Parnkalla (Eyre Peninsula) language, published by the Rev. C. W. Schürmann in 1844, where "pappa" is given as meaning a young animal, whelp or pup. The following words, taken from the vocabulary of the Lake Amadeus and George Gill Range aborigines, which was published by Mounted Constable

Willshire in 1891, show that the language spoken there is the same as that of the Everard tribe:—ippee, breasts; cobbie, water; curlier, emu; murra, hand; mear-roo, spear-thrower; puppa, dog; warroo, fire. Mr. Willshire's spelling has been retained. The language of the Everard Range tribe has, therefore, a fairly wide area in our North-West, in the south-western corner of the Northern Territory, and probably extends some distance into Western Australia. It has a close affinity to the Parnkalla, in Eyre Peninsula, and this again is one of the great family of languages which are (or were) spoken from Cape Jervis northwards along the coast, on Yorke Peninsula, and thence into the Far North, following generally the line of the Flinders Range, and which are linguistically well marked off from most of the native tongues spoken to the east of them, from the Murray mouth right up to Cooper Creek and the Finke River.

(c) MAMMALIA AND OPHIDIA.

By Edgar R. Waite, F.L.S., Director, South Australian Museum.

[*Contribution from the South Australian Museum.*]

The mammals and snakes obtained during the expedition are few in number and are well known from Central Australia. Occasion has, however, been taken to redescribe *Acanthophis pyrrhus*, Boulenger, of which several specimens are in the collection of the South Australian Museum. Field notes supplied by Captain White are appended within brackets.

Mammalia.

MURIDAE.

Ascopharynx cervinus, Gould.

Hapalotis cervinus, Gould: Proc. Zool. Soc., 1851, p. 127, and Mamm. Aust., iii., 1863, pl. x.; Spencer: Rep. Horn. Exp. Cent. Aust., ii., 1896, p. 11.

Conilurus cervinus, Ogilby: Cat. Aust. Mamm., 1892, p. 120.

Thylacomys cervinus, Waite: Proc. Roy. Soc., Vict., x., 1898, p. 122, pl. vi., fig. 3.

Ascopharynx cervinus, Waite: Ann. Mag. Nat. Hist. (7), v., 1900, p. 223.

Notomys cervinus, Thomas: Ann. Mag. Nat. Hist. (7), xvii., 1906, p. 83.

Seven specimens were obtained at Wantapella Swamps and one at Indulkana, July, 1914. The gular pouch is present in all specimens of both sexes, and, as far as known, the pouch occurs only in this species of Australian Muridae. Mr. Oldfield Thomas does not regard the possession of the pouch as a character of generic import, and therefore assigns the species to the genus *Notomys*, in which he also includes *N. mitchelli*, *N. longicaudatus*, and *N. richardsoni*.

In the interesting introduction to his "Index generum Mammalium," Palmer (1) cites the case provided by the nomenclature of the genus as an example of confusion arising from a misprint. He writes:—"Waite, in proposing the name *Thylacomys* for an Australian mouse, called attention to an obscure name given by Owen many years previously to a group of marsupials, but contended that because the latter was spelled *Thalacomys* (an obvious misprint), it did not preoccupy his name. Subsequently it was shown that Owen's name was in reality first printed *Thylacomys*, but it appeared in one publication and the description in another, so that the name might be considered a *nomen nudum*. It had, however, been used afterwards in correct form in connection with a marsupial prior to its application to a mouse. Waite, therefore, admitted that his *Thylacomys* was preoccupied, and replaced it by a new name. Thomas, while admitting the claims of Owen's name, with characteristic caution preferred to adopt the evident misprint, *Thalacomys*, which was published with a description, instead of the correct and really earlier *Thylacomys*."

[This wonderful little rat was seen more than once at mid-day in the mulga scrub. When alarmed it places its tail over the back and head and moves on its hind legs only. When in full flight it is difficult to ascertain what the moving object really is, appearing as little more than a blur. On one occasion with two companions I chased one of the rats round and about the bushes, finally running it to earth in a small burrow. We dug it out in company with two large lizards. The natives use the tip of the tail as an ornament.]

In this connection it may be mentioned that the tails used in all ornaments from Central Australia preserved in the South Australian Museum are those of the Rabbit Bandicoot (*Peragale lagotis*).

MUS HERMANNSBURGENSIS, Waite.

Mus hermannsburgensis, Waite: Rep. Horn Exp. Cent. Aust., ii., 1896, p. 405, pl. xxvi., fig. 5.

Seven examples taken at Carmeena, Everard Range.

[The mouse is not very common, but is found among the granite boulders in the Everard Range; it is known to the natives as "Meirkie."]

---

(1) Palmer: U.S. Dept. Agric., N. Amer. Fauna, No. 23, 1904, p. 27.

MARSUPIALIA.

PETROGALE LATERALIS, Gould.

Petrogale lateralis, Gould: Mon. Macrop., 1842, pl. xxiv.

Of the six specimens obtained, five were taken at a native well at Moorilyanna and one at the Granite rocks.

[Rock wallabies are very numerous in places among the great granite boulders, where they hide all day. At sundown they come out and bask on the western side of the boulders which has been warmed by the afternoon sun. At this time they may be somewhat easily approached, as they are engaged in cleaning their fur after the manner of a cat. Their flesh is not so good to eat as that of the brush wallaby.]

Ophidia.

DEMANSIA MODESTA, Günther.

Cacophis modesta, Günther: Ann. Mag. Nat. Hist. (4), ix., 1872, p. 35, pl. iii., fig. *c*.

Furina ramsayi, Macleay: Proc. Linn. Soc., N.S.W., x., 1885, p. 61.

Diemenia modesta, Boulenger: Cat. Snakes, Brit. Mus., iii., 1896, p. 324.

Demansia modesta, Waite: Trans. Roy. Soc., S.A., xxxviii., 1914, p. 445, fig. 2.

Several young examples were secured on the Everard and Musgrave Ranges. In all the frontal shield is broader than the supraocular. Boulenger states it is not so.

[The little banded snakes were often seen on the sand during the heat of the day, and despite their agility the camels frequently trod upon them.]

PSEUDECHIS AUSTRALIS, Gray.

Naja australis, Gray: Zool. Misc., 1842, p. 55.

Pseudechis australis, Günther: Ann. Mag. Nat. Hist., (3), xii., 1863, p. 362; Waite: Trans. Roy. Soc., S.A., xxxviii., 1914, p. 445, fig. 1.

The only specimen preserved is a very large one, perhaps the largest recorded, totalling 1,640 mm. in length, of which the tail measures 200 mm. There are 205 ventrals and 42 + 11 pairs of subcaudals; the anal is divided, and there are twenty scales round the body, the even number being unusual.

[This specimen is the largest snake I have seen in the interior. It was basking upon some dead branches, and when disturbed became very savage, making repeated attempts to strike.]

ACANTHOPHIS PYRRHUS, Boulenger.

Acanthophis pyrrhus, Boulenger: Ann. Mag. Nat. Hist. (7), ii., 1898, p. 75.

A single small specimen received from the Everard Range suggested an examination of all the examples of

Acanthophis from Central Australia preserved in the South Australian Museum. The Death Adder is known to be a very variable species, and there has been an inclination to regard *A. pyrrhus* merely as a particularly ruddy form of *A. antarctica.* Having, however, nine specimens for study, I find that the characters are quite constant, that the species is well founded, and that all our Central Australian examples prove to be referable to this form.

Description.—Rostral fully twice as broad as deep; internasals slightly longer than broad; prefrontals four, as long as the internasals; frontal one-half longer than broad, as long as the internasals and prefrontals together, equal to or longer than the parietals, and as broad as the supraoculars. Eye surrounded by six scales, one preocular, one supraocular, two suboculars, and two postoculars. Nasal long and undivided, in contact with the rostral, internasal, outer prefrontal, preocular and the first three labials. Temporals, 2 + 4. Six upper labials, the third larger than the fourth, the fifth the largest. With exception of the labials all the upper head shields are very rugose. Four lower labials in contact with the anterior chin shields, which are expanded and longer than the posterior pair. Scales in 21 rows, dorsals strongly, laterals feebly keeled. The anal is entire, and the number of ventral plates, etc., is shown below, the specimen described being lettered *a*. Colour bright orange-red, with dark cross-bars above, formed of three longitudinal scales, each bar separated by a similar interspace; end of tail, including the spine, dark-grey with black bands. Lower surfaces yellow, the two lower rows of lateral scales each with a black spot, especially conspicuous in the anterior part of the body.

It will be noticed that the description agrees quite well with that of the type specimen, excepting as regards the number of temporal shields: Boulenger renders them as 3 + 4, but in all our nine examples the anterior shields are but two in number.

DETAILS OF NINE SPECIMENS.

	a	*b*	*c*	*d*	*e*	*f*	*g*	*h*	
Ventral shields	149	147	147	153	155	142	142	152	141
Sub-caudal shields ...	26 + $\frac{14}{14}$	25 + $\frac{22}{22}$	13 + $\frac{34}{34}$	26 + $\frac{17}{17}$	30 + $\frac{16}{16}$	29 + $\frac{18}{18}$	29 + $\frac{15}{15}$	27 + $\frac{18}{18}$	25 + $\frac{16}{16}$
Total length in mm. ...	690	545	540	490	487	390	345	290	210
Length of tail in mm. ...	90	87	83	67	86	69	50	50	34

Localities:—

a, *c*, *e*—Central Australia, coll. R. T. Mitchell, 1897.
b—Finke River, coll. C. Winnecke, 1896.
d—Barrow Creek, coll. Thos. Hanley, December 24, 1907.
f, *g*, *h*—Barrow Creek, coll. F. R. W. Scott, September 24, 1908.
i—Everard Range, coll. Capt. S. A. White, July, 1914.

[The pink adder was found under a bush of porcupine grass *(Triodia)*; it showed fight and flattened out its neck to a surprising extent. The natives expressed great fear of the snake, and called it "Mythunda."]

I have pleasure in acknowledging assistance rendered by Mr. Herbert M. Hale in the preparation of the drawings accompanying this paper.

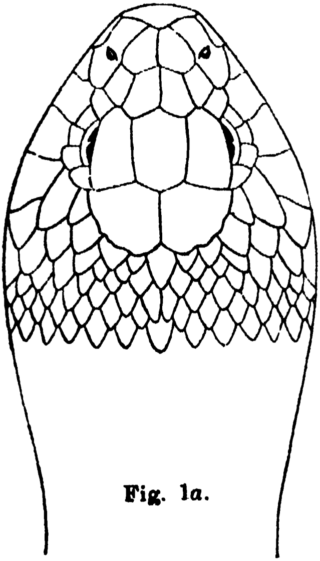


Fig. 1*a*.

Upper View of Head.

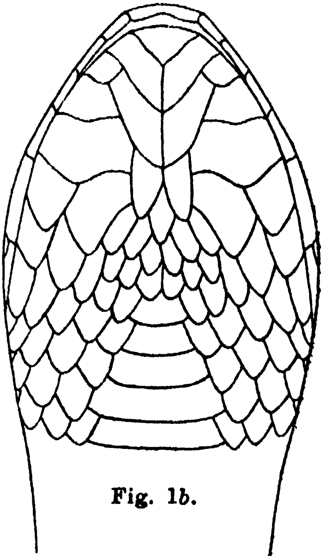


Fig. 1*b*.

Lower view of Head.

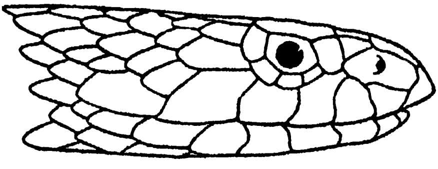


Fig. 1*c*.

Head in profile.

(*d*) AVES.(1)

By S. A. White, M.B.O.U.

Order CASURIIFORMES.

Family DROMICEIIDAE.

Dromiceius novae-hollandiae, Latham (Emu).

Owing to the country being in such a very dry state these birds must have shifted to where food and water were more plentiful. Emu tracks were seen in the sand and soft earth in many places. Two or three bunches of feathers were seen with the natives, who gave me to understand when rain fell emus would be plentiful. The natives are fond of depicting this bird in their drawings, and hardly a series of drawings was seen without numerous sketches of emu tracks and eggs.

Order GALLIFORMES.

Family MEGAPODIIDAE.

Leipoa ocellata, Gould (Western Mallee Fowl).

I am induced to put this down to the western form (although I have not handled the bird), because all the northwestern birds are more closely allied to the western forms. Old nesting mounds were seen. It can be well understood that this bird would move off to better-watered country, for during the last drought, which covered such a long period, there would not have been sufficient moisture to incubate their eggs.

Order TURNICIFORMES.

Family TURNICIDAE.

Austroturnix v. velox, Gould (Little Quail).

While passing through some high kangaroo grass (*Anthistiria ciliata*), close to Tietkens' Birthday Creek, several quail were flushed, and although the birds were not handled I feel sure they were of the above species. The only other occasion upon which they were seen was when we were passing through the foothills of the Musgrave Ranges. The country was in too poor a state for these birds; the grasses not having seeded for years, the quail had probably migrated to better country.

Order COLUMBIFORMES.

Family COLUMBIDAE.

Stictopeleia c. cuneata, Latham
(Eastern Spotted-shouldered Dove.)

This bird was very plentiful along the Alberga and other creeks till we reached about a hundred miles west of Oodnadatta;

---

(1) The nomenclature of this section (Aves) is after Gregory M. Mathews, F.R.S., "A List of the Birds of Australia, 1913."

then it disappeared altogether, and from what I could gather from the natives it is not found either in the Musgrave or Everard Ranges.

PHAPS C. CHALCOPTERA, Latham (Bronze-winged Pigeon).

At one or two of the rock-holes these fine pigeons came in to drink in the dusk of the evening; in fact, there were some instances when it was quite dark, and they could only be identified by the sharp clapping noise made by the wings. In every case they were found to be very timid.

LOPHOPHAPS PLUMIFERA LEUCOGASTER, Gould (White-bellied Plumed-Pigeon).

There is not the slightest doubt that this bird inhabits the Musgrave Ranges, although I did not see the bird there myself. Mr. Jack, after one of his flying trips to the southern side of the ranges, reported having seen a small party of pigeons, and from the description of colour and flight there is little doubt it was this bird. They were met with in large parties in the Everard Range. Whenever we came to a rock-hole there was sure to be a party of these little pigeons close by. Morning and evening they were found a few hundred yards out upon the plain, feeding amongst the low bush. As soon as disturbed, they made for the rocky sides of the range in a series of short flights, rising quickly, often with a clapping of wings, which were beaten very rapidly at first to attain an elevation of about twenty feet, when the wings are spread out, slightly drooping at the tips; in this position they are kept rigid till the bird floats in a most graceful manner to the ground. As soon as the bird alights upon its feet it runs very rapidly over the ground, with crest erect, and should it find it is being followed it will again rise upon the wing and repeat the performance till the granite rocks are reached, where the bird harmonizes so with its surroundings that it is soon lost to sight. When the pigeon alights upon the rocks it runs very rapidly, bobbing its head up and down, causing the graceful plume upon the head to wave in a very pleasing manner. The eggs, which are two in number, are laid on the bare sand, and formed round, somewhat to the shape of the bird's body. The situation selected is generally under a low bush. One day my assistant came upon a broody bird, and when several yards off the bird ran out to meet him, with feather fluffed out in a great rage, following the intruder until he was some distance from the nest. Strange to say, this proved to be a male bird. The roosting-place is upon the ground, under the leeside of a low bush, several squatting close together. From the quantity of excreta seen they must frequent the same roosting site for months at a time. Their flesh is white, tender, and of excellent flavour. From specimens taken they seem more robust and stronger-marked birds than those we collected in the central regions the previous year. The natives call this bird "Ebru."

OCYPHAPS L. LOPHOTES, Temminck (Crested Pigeon).

These beautiful pigeons were found fairly numerous near water-holes on the Alberga, but became less numerous as we worked west. A number came in to water at Wantapella Swamp each morning and evening; disappearing as we entered granite country. They are a much more trustful bird in comparison with the Bronze-wing *(Phaps c. chalcoptera)*, and when a party of these birds are moving over the ground in search of food, raising and lowering their beautiful crests, it is a very pretty sight.

Order PODICIPIFORMES.

Family PODICIPIDAE.

POLIOCEPHALUS P. POLIOCEPHALUS, Jardine and Selby (Hoary-headed Grebe).

After leaving Todmorden and travelling up the Alberga River, we met with these birds in most of the water-holes. They were not plentiful; two or three were the most seen at one water-hole. They showed no variation from the southern bird.

Order CHARADIIFORMES.

Family VANELLIDAE.

LOBIBYX NOVAE-HOLLANDIAE, Stephens (Spur-winged Plover).

If this bird be a resident in the north-western corner of the State I was unable to ascertain, but the call was heard on several occasions at night during the first part of the journey.

Family CHARADRIIDAE.

ELSEYA M. MELANOPS, Vieillot (Black-fronted Dotterel).

Like the grebes, a few of these birds were seen at all the waters along the Alberga, but as soon as the last water-hole was left behind us these birds were not seen again. There is no doubt they breed in the interior, for a female bird went through all the antics of a wounded bird to entice me away from young and eggs; she fluttered along the ground a few paces in front of me, rolling over on her side at times, as if exhausted with her struggles.

Family GLAREOLIDAE.

PELTOHYAS A. AUSTRALIS, Gould (Australian Dotterel).

While travelling over a very stony tableland a party of these interesting birds was met with; they were running over the stony ground very rapidly, and their colouration harmonized so well with the gibber stones around them that when stationary it was almot impossible to tell bird from stone. After the first shot they made off very quickly. Those specimens secured were all males. Although a sharp look-out was kept for these birds, they were not again seen. What they can get in the shape of food on the fearfully dry gibber plains or stony desert country is a wonder, but when the stomach contents have been worked out this may throw some light upon the subject.

Family BURHINIDAE.

BURHINUS M. MAGNIROSTRIS, Latham (Eastern Stone Plover).

The bird was not actually seen, but that is only natural, for they keep very close to the ground when danger is near, and their colouration is so like their surroundings that it defies detection at times. Their unmistakable cry was heard on more than one occasion at night time.

Family OTIDIDAE.

AUSTROTIS A AUSTRALIS, Gray (Australian Bustard).

This fine bird was not at all numerous, a fact due to the great drought, no doubt. In places where a few light showers had fallen and the herbage made its appearance some of the bustards had collected, but were extremely shy, and were seldom seen before they were on the wing. It is a great wonder how such heavy birds can rise upon the wing amongst the thick mulga where they often are to be found. In several places feathers were seen, showing where the natives had made a capture.

Order PSOPHIFORMES.

Family ARDEIDAE.

NOTOPHOYX NOVAE-HOLLANDIAE, Latham
(White-fronted Heron).

It was not unusual to meet with this bird near the large water-holes which last for many months after the river ceased to run. This was especially noticeable on the Alberga. The birds were either flushed from the edge of the water, where they were in quest of food, or they were seen perched in the big gums near the river. As soon as we left the Alberga and entered the dry country these birds were not seen.

Order ANSERIFORMES.

Family ANATIDAE.

VIRAGO GIBBERIFRONS, Müller (Grey Teal).

A few were met with on the water-holes while we were travelling along the Alberga; never in any numbers.

Order ACCIPITRIFORMES.

Family FALCONIDAE.

ACCIPITER C. CIRROCEPHALUS, Vieillot (Collared Sparrow-Hawk).

This was a rare bird in the country travelled through. One or two solitary birds were observed near watering-places, where they kept watch for small birds as they came to drink.

UROAETUS A. AUDAX, Latham (Wedge-tailed Eagle).

These eagles were seldom seen. One or two were met with flying high over the ranges. They are much sought after by the natives for the down, which is used for ornamentation of both the human body and ceremonial sticks.

HALIASTUR SPHENURUS, Vieillot (Whistling Eagle).

A few birds were seen in the large gums along the Alberga River. After the large water-holes were left this bird was not again seen.

FALCO L. LONGIPENNIS, Swainson (Little Falcon).

Was not found a plentiful bird anywhere. A solitary bird or a pair would be met with at water-holes, where they preyed upon small birds, such as finches, which came to water. On several occasions it was seen to sweep on very swift wing through a flock of Chestnut-eared Finches *(Taeniopygia castanotis)*, seize a finch, fly with it to a dry mulga, and return in a few moments for another.

FALCO HYPOLEUCUS, Gould (Grey Falcon).

A pair of these birds were met with near Oodnadatta on June 23. They were hopping and dodging round a thick bush, and after observing them for a while it appeared that they were after a Black-and-white Fantail *(Leucorcirca t. tricolor)*, which they at last captured and killed. This falcon was not again seen during the Expedition.

IERACIDEA B. BERIGORA, Vigors and Horsfield (Striped Brown Hawk).

This is the most common of the hawk family in the central regions. They were met with along the dry water-courses and out in the thick mulga, as well as in the ranges. Specimens examined do not show any variation to those collected north of Oodnadatta the previous year. They are a much lighter bird to those found further south.

CERCHNEIS C. CENCHROIDES, Vigors and Horsfield (Nankeen Kestrel).

This very useful bird was not plentiful; still it was widely distributed, and seldom many days passed without meeting with a pair. Habits seem the same as those found south, and food consists chiefly of small reptiles, mice, and insects.

Order STRIGIFORMES.

Family STRIGIDAE.

SPILOGLAUX BOOBOOK MARMORATA, Gould (Marbled Owl).

These owls were often met with in thick-foliaged trees near the water-coures, also among the big masses of rock in the ranges. All species handled show a great deal more white in comparison to those found in the coastal area.

Order PSITTACIFORMES.

Family CACATOIDAE.

EOLOPHUS R. ROSEICAPILLUS, Vieillot (Rose-breasted Cockatoo).

Those birds were in great numbers about the township of Oodnadatta. All day long they were hunting about in the stockyards and sand and stony streets for food. When disturbed they would rise in a great flock and alight a few yards further on. They were not seen again until the Officer Creek was reached, when a few birds came under notice.

LEPTOLOPHUS A. AURICOMIS, Swainson (Cockatoo Parrot).

One or two small parties of these birds were seen on the wing while the Expedition followed up the Alberga River, and after leaving the dry water-course they were not met with.

BARNARDIUS ZONARIUS MYRTAE, (2) subsp. nov. (Central Australian Yellow-banded Parrot).

Head and upper part of the neck black; feathers on the cheeks tipped with bright-blue; a broad crescent of bright yellow across the back of the neck; chest and back bright green, rump and upper tail-coverts bright yellowish-green; primaries brownish-black; the basal half external margin bright blue; secondaries, internal half brownish-black, external bright bluish-green; wing-coverts rich greenish-yellow; two central tail feathers bluish-green, next two bluish-green tipped with light-blue, the remainder having their basal half dark blue; the remainder light-blue; abdomen bright yellow; under tail coverts bright yellowish-green; iris brown; feet ashy-grey; bill buish-white.

---

(2) Named after Mrs. Morgan, the wife of Dr. A. M. Morgan, of Adelaide.

Type.—A male, collected by S. A. and E. R. White at Horseshoe Bend, Finke River, Central Australia, on August 8, 1913; now in the Wetunga Collection. Female differs in being of a much paler colouration.

Differs from *B. zonarius* in having a much brighter colouration throughout, and in being a somewhat larger bird; the feathers of the chest and back, instead of being a dark green with an olive tinge are of a bright green; the rump and upper tail-coverts are of a bright yellowish-green. Its range extends from Oodnadatta north to the MacDonnell Ranges and west to the Musgrave and Everard Ranges. This bird was met with on all the dry water-courses throughout the expedition. They were often found feeding under the acacia trees upon the fallen seeds of that tree. They were breeding at Wantapella Swamp in July, one nest having large young low down in a hollow red-gum. Their note and habits differ little from *B. zonarius*. The size and colouration is the same all over the central region.

Psephotus varius rosinae, Mathews

(Southern Many-coloured Parrot).

Ref. Nov. Zool., vol. xviii., p. 277, 1912.

Very plentiful in districts where water was found. They were often flushed from the ground amongst the mulga, where they were searching for the seed of that tree. In several cases the male birds had dark brick-red shoulders in place of the bright yellow. Probably this is not consistent, consequently I am not classing it as a new variety.

Neopsephotus bourkii, Gould (Blue-vented Parrot).

This beautiful little parrot was first met with at Flat Rock Hole, where it came in to drink up to nine o'clock at night. Flying round several times in small parties of four or five birds, they uttered a plaintive little whistle, at times almost warbling. They alighted on the bare rock and walked to the water's edge. It is quite possible these birds have made it a practice to come to water late owing to birds of prey as a rule watching watering-places both morning and evening. Later on a small covey of these birds was flushed from amongst the dry grass, when the camels were passing through some open mulga country. They rose quickly, alighted on a dead mulga for a few seconds, then flew away swiftly out of sight. The crops of the specimen procured were very distended with small grass seeds.

MELOPSITTACUS UNDULATUS, Shaw and Nodder (Warbling Grass Parrot).

Near a small rock-hole in Tietkens Creek (the hole only contained a few gallons of water) grew a few fine red-gums *(Eucalyptus rostrata)*; in one of these a small party of the above parrots were chasing one another in and out the hollow limbs, as if preparing to nest. This was the only occasion on which these birds were seen.

Order CORACIFORMES.

Family PODARGIDAE.

PODARGUS STRIGOIDES, Latham (Tawny Frogmouth).

Very few were seen. Examined one very closely while it was brooding on a nest, and it did not show any variation to the birds found in the middle-north.

AEGOTHELES CRISTATA, White (Owlet Nightjar).

Only one specimen was taken. Upon comparison it was found to mostly resemble specimens collected at Laura, South Australia.

Family ALCEDINIDAE.

CYANALCYON PYRRHOPYGIUS, Gould (Red-backed Kingfisher).

Not often met with, and seems to be able to exist without water, for they were met with in the dryest parts of the country. Their call is a very harsh, discordant one, usually uttered from the top of a dead tree, where they will sit almost motionless for hours. Food seems to consist principally of grasshoppers and such like insects; small lizards are sometimes eaten.

Order COCCYGES.

Family CUCULIDAE.

HETEROSCENES PALLIDUS, Latham (Pallid Cuckoo).

Not plentiful. The specimens of females taken show a great deal of rufous colouration on back and wings. From the observations made they confirm my opinion that the female does not make that scale-like call of the male.

OWENAVIS OSCULANS, Gould (Black-eared Cuckoo).

Quite a number of these birds were met with, and their plaintive call of one note was often heard in the dry mulga scrub.

NEOCHALCITES BASALIS, Horsfield
(Narrow-billed Bronze Cuckoo).

Only one bird was seen, which was taken, and it shows little or no variation to birds found further south.

Order PASSERIFORMES.

Family HIRUNDINIDAE.

HIRUNDO NEOXENA, Gould (Welcome Swallow).

A few seen round the homestead at Todmorden and a few in the ranges.

CHERAMOECA LEUCOSTERNUM STONEI, Mathews
(Black-and-white Swallow).

This bird was often met with during the journey; in many cases it was nesting in the banks of dry water-courses. The tunnels to the nest varied in length according to the softness of the material through which they had to work. Skins showed no variation to those found round Adelaide.

Family MUSCICAPIDAE.

WHITEORNIS GOODENOVII, Vigors and Horsfield
(Southern Red-capped Robin).

A common bird in the mulga scrubs. No signs of nesting were seen; possibly it was too early, or owing to the drought they had deferred their nesting until such time as rain fell. Quite as many birds were found without the red feathers on the throat as with them, both in the same locality, which makes *W. g. ramsayi* a very doubtful subspecies.

MELANODRYAS CUCULLATA VIGORSI, Mathews
(Southern Hooded Robin).

Found all over the country traversed. The only variation with specimens taken further south is that the northern bird has a more slender bill, and this is consistent, for all skins collected north of Oodnadatta in 1913 show the same characteristic. These birds in the north-west have a most remarkable call, being identical with the Red-rumped Kingfisher; in fact, so much so that the latter bird was hunted for on hearing the call, and it was some time before this peculiar occurrence was discovered.

SMICRORNIS BREVIROSTRIS MATHEWSI, subsp. nov.

(Central Australian Tree-Tit).

Differs from *S. brevirostris* in being much lighter on the back, and the yellow of the breast and abdomen being much brighter, the ear-coverts being of a much darker buff and larger. Differs from *S. b. flavescens* in having a much deeper yellow breast, much larger ear-coverts of a darker buff, and colouration of the back much darker. Most resembles *S. b. melvillensis*, but differs in having a rich yellow breast and abdomen, while the Melville Island bird is almost white underneath.

Type.—A female collected at Wantapella Swamp by S. A. White on August 18, 1914, and now in the Wetunga Collection. The sexes are alike.

Range.—From Oodnadatta north to the MacDonnell Ranges and west to the Musgrave and Everard Ranges. Only met with on or near the water-courses; have never seen it far from the red-gum trees. It spends most of its time hunting amongst the foliage of this tree, and utters a very loud call for so small a bird. Builds a suspended dome-shaped nest, constructed chiefly of cobwebs and small dry leaves, with a little dry grass and leaves, interwoven with a few soft particles of bark, and lined with feathers. Shows no variation with specimens procured north of Oodnadatta the previous year.

ETHELORNIS CULICIVORUS MUSGRAVI,⁽³⁾ Mathews

(Musgrave Fly-eater).

Not having sufficient material for comparison, the specimens were forwarded to Mr. G. M. Mathews, of England, and he has described this bird as above. It was only found in one locality, amongst the thick mulga at the foot of the Musgrave Ranges. Like many other members of the genus, it possesses a beautiful low, sweet note, but for which it would hardly be discovered. The colouration of its plumage is of the same dull hue as the bird's surroundings.

LEWINORNIS RUFIVENTRIS MAUDEAE,⁽⁴⁾ subsp. nov.

(Central Australian Rufous-breasted Thickhead).

Crown of the head and all the upper-surface bluish-grey, becoming much lighter on the rump and upper tail-coverts; feathers of the head, back, and mantle having a faint dark line down the centre; ear-coverts and lores, also band around the chest (the latter extending upwards on either side of the

---

(3) Austral Avine Record, vol. ii., No. 7, p. 130.

(4) Named after Mrs. H. L. White, "Belltrees," New South Wales.

ear-coverts) black; throat and abdomen white; breast, flanks, and under tail-coverts washed with rufous; upper-surface of tail greyish-black, edged and tipped narrowly with grey, under-surface of tail dark-grey; primaries greyish-black, very narrowly margined externally with light-grey; secondaries and wing-coverts greyish-black, deeply margined, and the latter tipped with light-grey; iris reddish-brown; bill and feet black.

Type.—A mature male collected on the Officer Creek, west of the Everard Range, on August 6, 1914, by S. A. White, and now in the Wotunga Collection.

Range.—Extending from Oodnadatta north to the MacDonnell Ranges and west to the Musgrave and Everard Ranges. Differs from *L. r. inornatus* in being much lighter above, the light margins of the secondaries being much deeper, in some cases half the width of the feather, being of very light-grey; the breast only having a wash of rufous colour and the abdomen being white, the bill being much narrower and not nearly so robust.

This bird was met with all over the country between the head of the line and the Musgrave Ranges. Its note is not nearly so melodious as the southern bird, although several notes are in common. Specimens secured are without doubt the same as those collected between Oodnadatta and the MacDonnell Ranges during my expedition the previous year. Birds, even in the second year, although they have the rufous wash and black band (the latter not so pronounced), and have lost the striation of the feathers, do not develop the black ear-coverts and lores till the third year at least.

LEUCORCIRCA TRICOLOR, Vieillot (Black-and-white Fantail).

This bird was widely distributed, but nowhere plentiful. On one occasion a Grey Falcon was seen to chase one of these harmless birds round and through a bush till it was captured. There seems to be little or no difference between this bird and those found further south.

Family CAMPOPHAGIDAE.

PTEROPODOCYS MAXIMA, Rüppell (Ground Cuckoo Shrike).

Only met with at one locality—at a large water-hole in the bed of a creek about fifty miles west of Oodnadatta. The birds came in to drink at sundown, were easily distinguished by their strange call, and were very shy.

CORACINA NOVAE-HOLLANDIAE MELANOPS, Gmelen (Black-faced Cuckoo-Shrike).

A common bird, often seen in the scrub, as well as in the open and along the water-courses. They seem to feed upon many berries as well as insects.

LALAGE TRICOLOR, Swainson
(White-shouldered Caterpillar-eater).

Quite numbers of these birds were met with; sometimes a small party would be seen in close attendance upon flowering shrubs, where they preyed upon many flying insects attracted by the flowers. Although numbers came under observation, not one was seen in full breeding plumage. Had all the appearance of travelling south.

Family TIMELIIDAE.

CINCLOSOMA CASANOTUM DUNDASI, Mathews
(Chestnut-backed Ground-Bird).

Only met with in the sandy country between the Everard Range and the Officer Creek. Fully-fledged young were taken in August, also eggs.

SAMUELA CINNAMONEA, Gould (Cinnamon Ground-Bird).

On the outward journey these birds were rather plentiful on the stony tablelands, but upon our return, in the same locality, not a bird was to be seen. I have never seen this bird in the sandhill country. It will be seen by Mr. Lea's examination of stomach contents that the birds are great seed-eaters.

MORGANORNIS SUPERCILIOSUS, Vigors and Horsfield
(White-browed Babbler).

Very plentiful; enjoys a great range. Many specimens were taken of a dark-red colour, caused by bathing and then fluttering in the red dusty soil. Many nests were seen, some containing eggs, others young birds.

CALAMANTHUS CAMPESTRIS ISABELLINUS, North (Desert Wren).

Only met with at odd times amongst the saltbush up to Wantapella Swamp, but after entering the granite country they disappeared. Very shy and difficult to procure, passing from one bush to the other with great rapidity.

PTENOEDUS MATHEWSI VIGORSI, Mathews
(Eastern Rufous Song-Lark).

One specimen taken at Wantapella Swamp. The bird was very silent.

Family TURDIDAE.

PAREPTHIANURA TRICOLOR, Gould (Tricoloured Chat).

Large flocks were met with, composed of birds in all stages of plumage. At the first part of the journey it was rare to see a bird in full breeding plumage, but on the way back it was common to see such. They showed a preference for open scrub country. Had every appearance of migration, probably due to food supply.

AUREPTHIANURA AURIFRONS, Gould (Orange-fronted Chat).

Not so plentiful as the last species, and seems to prefer the open saltbush plains to bush land.

ASHBYIA LOVENSIS, Ashby (Desert Bush-Chat).

These birds are so like the Pipit in habits that they were taken for such until handled. They ran along in front of me, bobbing their tails up and down, giving forth a sharp note very like the warning note of the Pipit, but not quite so loud.

Family SYLVIIDAE.

ACANTHIZA PUSILLA CONSOBRINA, Mathews (Pale Red-rumped Tit).

Often met with, and seems to have a great range. It seems to show a preference for open scrub country, and possesses a lovely little song, not loud but very sweet.

ACANTHIZA MARIANAE,(5) S. A. White (Everard Range Tit).

After entering the granite country west of the Indulkana Range this new *Acanthiza* was met with. It was fairly plentiful in the thick mulga scrubs, which extend between the Everard and Musgrave Ranges. In some cases this was the only bird to be found in these dense, waterless solitudes. The dry, lifeless scrubs seem to affect these little birds, for not once did I hear them burst out into song; a feeble little chirrup seems to be their usual note, even at nesting time. It seems to spend most of its time hopping silently about amongst the lower branches of the mulga, which its colouration so resembles, peering behind every piece of bark and into every nook and corner in search of insects, moths, and spiders; the latter must be drink as well as food. Although the bird resembles *A. uropygialis condora* somewhat in size and colouration of under-surface, the bill of this new bird is thicker and is of quite a different shape, and the blue-grey of the upper-surface is unlike any other member of the genus in Australia. The upper-surface harmonizes so well with the bark of the mulga trees that it would be very difficult from overhead to pick this little bird out when sitting on the blue-grey bark of the mulga.

---

(5) White, S. A., South Australian Ornithologist, vol. ii., No. 2, 1915.

ACANTHIZA UROPYGIALIS CONDORA, Mathews (Pale Chestnut-Rumped Tit).

This was a common bird, found in nearly every situation. Very sprightly, moving about amongst the foliage of mulga, acacia, and other shrubs with great alertness, uttering a sharp little note, like chit, chit, chit, nearly all the time. When resting one or two will sit on a bough close to one another, and evidently the male birds break out at times into a short but melodious and soft song. I discovered a nest of this bird at Moorilyanna Native Well. It was placed in a stump six inches from the ground, and was composed of bark, grass, and cobwebs; lined with wallaby fur and feathers. The eggs were three in number, ground colour white, spotted with reddish-brown, more thickly at one end. This is the first nest taken of this species, and was described by H. L. White, of "Belltrees," New South Wales, in the "Emu," vol. xv., part 1, p. 35, July, 1915.

ACANTHIZA IREDALEI MORGANI, Mathews (Southern Thin-billed Tit).

This is a very rare little bird, and was only seen on two occasions. Note and habits seem very like other members of the genus.

GEOBASILEUS CHRYSORRHAUS ADDENDUS, Mathews (Port Augusta Yellow-rumped Tit).

Met with in small parties, both in the Musgrave and Everard Ranges. When flying they were very conspicuous with their light-yellow breast and bright-yellow rumps. Skins taken agree well with those collected in the type locality; note does not differ from the coastal forms.

PYRRHOLAEMUS BRUNNEUS, Gould (Red Throat).

In many localities it was numerous; showed a decided preference to the western or south-western slopes of ranges, where it kept very close to the low bushes. A great songster, and if not disturbed will mount to the top of a bush and pour forth song after song. Mr. Lea's examination of stomachs shows that this bird eats quite a quantity of seeds, which is certainly remarkable.

MALURUS MELANOTUS CALLAINUS, Gould (Turquoise Wren).

Met with for the first time during the trip eighty miles west of Oodnadatta, after which it was seen in many localities, but not in any numbers. Upon comparison, I find that this bird really comes between *M. callainus* and *M. whitei*, approaching the first-named more closely; yet the shade of blue on head and mantle does not agree with either.

HALLORNIS CYANOTUS, Gould (White-winged Wren).

This is a true saltbush bird, and is seldom seen away from it. A very wide distribution, but not numerous. Specimens taken show little or no variation.

DIAPHORILLAS TEXTILIS PURNELLI (6)
(Buff-throated Grass-Wren).

Very numerous amongst the porcupine grass growing on the foothills of the Musgrave and on the Everard Ranges. Found it very difficult to obtain specimen, for they kept so close to cover that they would allow themselves to be trampled on almost before making off. The female shows a great deal more rufous colouration on the flanks than the male. Their colouration harmonizes most wonderfully with the reddish-brown granite. Just before sundown the male bird will sit upon a bare rock and sing a sweet little twittering song, but at the slightest sound darts like a mouse to cover.

EYRAMYTIS, sp (?).

A bird of this genus was met with near Indulkanna Springs, which was taken at the time for *E. goyderi*, but since then Gould's plate of the latter bird having been examined it is easily seen that the skins in the Adelaide Museum labelled *E. goyderi* are not that bird, but agree fairly well with this doubtful species.

Family ARTAMIDAE.

CAMPBELLORNIS PERSONATUS MUNNA, Mathews
(Masked Wood-Swallow).

Several large flocks were met with travelling south in company with *C. superciliosus*.

CAMPBELLORNIS SUPERCILIOSUS, Gould
(White-browed Wood-Swallow).

Appeared to be travelling south with *C. p. munna*.

AUSTRARTAMUS MELANOPS (Black-faced Wood-Swallow).

Thinly scattered all over the country; not nearly so plentiful as further south.

---

(6) Mathews, A. A. Record, vol. ii., No. 5, p. 99.

Family PRIONOPIDAE.

COLLURICINCLA RUFIVENTRIS WHITEI, Mathews (Southern Buff-bellied Shrike-Thrush).

Fairly plentiful near water. There seems little or no difference between this and the southern bird. A nest was observed in course of construction; it was composed of strips of bark and placed in a stump five feet from the ground.

GRALLINA CYANOLEUCA, Latham (Magpie Lark).

Observed once or twice at water-holes while travelling along the Alberga River, but did not again appear in the dry country.

Family LANIIDAE.

CRACTICUS NIGROGULARIS MELLORI, Mathews (Southern Black-throated Butcher-Bird).

A few met with along the dry water-courses. Their beautiful carol was heard night and morning. A very early bird, and at times very noisy. Skins collected and compared with those from the central districts show no variation.

BULESTES TORQUATUS ETHELAE, Mathews (Southern Butcher-Bird).

Very rare; only one or two seen.

OREOICA CRISTATA CLELANDI, Mathews (Crested Bell-Bird).

Found all through the country, but one could not say they were plentiful. One of their notes resembles the camel bell most wonderfully. Often to be seen searching over the ground for food, when they hop along rapidly, but when alarmed stand motionless, and are difficult to detect amidst their grey surroundings. They are wonderful ventriloquists.

Family PARIDAE.

APHELOCEPHALA CASTANEIVENTRIS WHITEI,(7) Mathews (Whiteface).

This subspecies, which we discovered the year previous to this expedition, was plentiful all through the country. Took a nest in the Everard Range, on August 8, 1914; it was composed of grass and twigs, lined with animal fur, and placed in a hollow mulga. The eggs were three in number, almost round, the ground-colour greyish-white, spotted all over with dark-red or purple markings. These are the first eggs taken of this subspecies, and were described by H. L. White, "Emu," vol. xv., part 1, p. 36.

---

(7) A. A. Record, vol. ii., No. 5.

APHELOCEPHALA PECTORALIS, Gould

(Chestnut-breasted Whiteface).

The rediscovery of this bird was a great surprise, John Gould having described it in 1871, and it had not been seen since. It was met with in small parties on the tablelands or gibber country, about fifty miles west of Oodnadatta, and continued to do so off and on till we entered the granite country west of the Indulkana Range, and this range may form the westerly limit. They were hopping about on stony ground in search of seeds. When alarmed they flew into a bush (if one was near), then off to some little distance to alight upon the ground, where they moved about very quickly. When on the wing they uttered a twittering note. A good series of species was collected—adult males and females, as well as immature birds. Rain having fallen lightly over a restricted area a few weeks prior to our visit, these birds had nested and brought up their young, having quite a number with them. In some cases the young birds had a few dark spots appearing on the faint buff band which crosses the breast.

APHELOCEPHALA NIGRICINCTA, North

(Black-banded Whiteface).

Numbers of these birds were met with on the stony tablelands, often in company with *A. pectoralis*, and, like that bird, were not seen after entering the granite country, although *A. c. whitei* was plentiful everywhere.

SPHENOSTOMA CRISTATUM PALLIDUM, Mathews

(Pale Wedgebill).

Scattered throughout the country visited; were met with in very dry localities. They move very rapidly over the ground in long hops, taking flight every little while to a low bush, and while on the wing invariably spread out the tail, and when they alight hop from branch very quickly with crest erected. Specimens taken near the Musgrave Ranges are very light in colouration.

Family SITTIDAE.

NEOSITTA PILEATA TENUIROSTRIS, Gould

(Slender-billed Tree-runner).

Small parties were met with in the mulga scrubs, where they were searching for insects in the crevices and behind the trunks and branches. Specimens do not show any variation to birds found further south.

Family CERTHIIDAE.

CLIMACTERIS ERYTHROPS SUPERCILIOSA, North (White-browed Tree-creeper).

Was not met with till sixty miles west of Oodnadatta, but after that it was plentiful in some localities. Generally met with in pairs, but no nests were seen.

Family DICAEIDAE.

AUSTRODICAEUM HIRUNDINACEUM, Shaw and Nodder (Mistletoe Bird).

Very few of these little birds came under notice; this is no doubt due to the scarcity of the parasitic plant, *Loranthus.*

PARDALOTINUS RUBRICATUS PALLIDUS, Campbell (Pale Red-browed Pardalote).

Met with on nearly all the dry water-courses along which red-gums grew. Their note is a double one, quickly repeated. Specimens collected are much paler in every respect to those taken the year before in the central regions.

PARDALOTINUS STRIATUS FINKEI, (8) Mathews (Central Australian Pardalote).

A few of these birds were met with amongst the gum-tree tops along the dry water-courses On comparison with the skins taken in Central Australia, 1913, they agree in every respect.

Family MELIPHAGIDAE.

GLICIPHILA ALBIFRONS, Gould (White-fronted Honey-eater).

Quite a number of these birds had congregated in several localities visited; this was due to the fuchsia bushes *(Eromophila)* being in full flower. They are very timid, and darted about amongst the bushes in a most erratic manner. The note is mournful and long-drawn.

CERTHIONYX VARIEGATUS, Lesson (Pied Honey-eater).

This rare honey-eater was first met with amongst the granite boulders at Moorilyanna Native Well, and attracted attention by its strange movements. Hopping on the ground round a mulga bush, it climbed up the stem after the manner of a parrot, till it was about two feet from the ground, when it hung head downwards for a minute or more; then it let go and fell to the ground, hopped round the bush, and again repeated the performance.

---

(8) A. A. Record, vol. ii., No. 5.

MELIPHAGA SONORA, Gould (Singing Honey-eater).

A very common bird all over the country traversed. The large series of skins taken agrees well with the coastal form, yet the note of the interior bird is a very distinctive one, and not once did we hear any of the notes common to coastal birds. One of the most common calls of this interior bird is made when passing from one flowering tree or shrub to another, and sounds like "perisimo, perisimo," repeated many times, but none of the full, liquid, and sonorous notes we are so used to hearing in the south.

LICHENOSTOMUS KEARTLANDI, North (Grey-headed Honey-eater).

Met with in the Musgrave and Everard Ranges, where it was fairly plentiful. It possesses that erratic flight and manner so common to members of the same family. The note is rather feeble, the most common one being an alarm note, uttered many times, like "chit, chit, chit." Found fully-fledged young, with the parent birds, in the Everard Range. Upon comparing the birds with skins taken in the type locality I find that the birds from the Musgrave and Everard Ranges are much brighter, especially the yellow on the breast and throat.

LICHENOSTOMUS PLUMULUS ETHELAE, Mathews (Southern Yellow-fronted Honey-eater).

In some localities these birds were very numerous and are very like *P. ornata* in habits and call, many of the notes being the same at Wantapella Swamp. Young birds just away from the nest were met with, and their breasts were covered in a light-yellow down. I found this the case with nestlings a few days old.

PTILOTULA PENICILLATA LEILAVALENSIS, North (Cloncurry White-plumed Honey-eater).

The bird was found on all the dry water-courses and in the ranges where the red-gum was growing. Its habits and note seem identical with the southern form, *P. penicillata.* I feel very uncertain about this bird being the Cloncurry variety, for it shows a dark line alongside the white ear-covert, but not having seen North's type I am allowing it to appear as above.

MYZANTHA FLAVIGULA, Gould (Yellow-throated Miner).

A very common bird near all water, and, like other members of the genus, very noisy and restless. They have a habit of congregating in a party of a dozen or more on a limb, all calling as loudly as they can; then one bird will fly off to another tree, and all will follow one after the other. The skins procured agree with those collected between Oodnadatta and the MacDonnell Ranges.

ACANTHOGENYS RUFOGULARIS CYGNUS, Mathews (Southern Spiny-cheeked Honey-eater).

Wherever we met with flowering trees and shrubs this bird was fairly plentiful. No difference can be detected between this and the southern bird.

Family MOTACILLIDAE.

ANTHUS AUSTRALIS ADELAIDENSIS, Mathews (Southern Pipet).

These birds were often met with in pairs on the saltbush plains and open patches in the mulga. In one instance they were found breeding.

Family PLOCEIDAE.

TAENIOPYGIA CASTANOTIS, Gould (Chestnut-eared Finch).

These birds congregated night and morning in great numbers at some of the waters, and the ground under the bushes and around the watering-places was white with excreta of these finches.

EMBLEMA PIETA ETHELAE,(9) Mathews (Painted Finch).

This is a very rare and shy bird. Seen once or twice in the deep gorges of the Musgrave Ranges, and seemed to be feeding upon the seed of the porcupine grass.

Family COVIDAE.

CORVUS CORONOIDES PERPLEXUS, Mathews (Southern Raven).

Numbers of these birds were seen. They are very puzzling, for skins were collected with white basal half to feathers, while others had these black. The majority had white eyse, a few having hazel or light-brown eyes.

NEOSTREPERA VERSICOLOR PLUMBEA, Gould (Leaden Crow-Shrike).

This is a record for this bird to be found in South Australia, but it is only an overlapping of a western form. Met with in the Musgrave and Everard Ranges, and was heard of on the Alberga River at Lambinna Soak. Not plentiful; very shy and wary. A pair was nesting in the Everard Range in August.

---

(9) A. A. Record, vol. ii., No. 5.

(e) STOMACH CONTENTS OF BIRDS.

By Arthur M. Lea, F.E.S., Museum Entomologist.

[*Contribution from the South Australian Museum.*]

The stomachs brought back by Captain White were nearly all of small birds, and many contained specimens of insects, or fragments of same, that certainly belong to undescribed species. Some of them contained amazing numbers of ants; in fact, ants appear to be the staple food of many Central Australian birds, and they bulk largely in most stomachs. Most of the seeds found in the stomachs were sent to Mr. J. H. Maiden (Government Botanist of New South Wales), and we have to thank him for all the botanical names given in brackets: these, he writes, were from determinations by his assistant (Mr. Carne).

In the following list only the technical names of the birds are given, the popular ones will be found in Captain White's own paper; they are in the same sequence:—

Peltohyas australis.—Two caterpillars; head and abdomen of small male ant; vegetable matter; many small pebbles.

Cerchneis cenchroides. (1)—Some fine grit.

Neopsephotus bourkii.—Crop—Distended with hundreds of small round seeds; a few larger seeds. Stomachs (1)—A few of the round seeds as in crop, and some fine grit. (2)—As first stomach.

Cyanalcyon pyrrhopygius.—Four lizards, or remnants of same (one *Lygosoma lesueurii*, two *Amphibolurus reticulatus* (2)).

Heteroscenes pallidus.—Two wingless grasshoppers *(Trigoniza)*; two heads and other parts of another species of grasshopper; many other fragments of insects.

Neochalcites basalis.—Large hairy caterpillars; three small caterpillars; fragment of beetle; small amount of grit.

Whiteornis goodenovii.—(1)—Six caterpillars, fragments of scutellerid bug; fragments of small weevil *(Desiantha* [?]); small beetle *(Formicomus)*; head of small ant *(Pheidole*, soldier); many other fragments of insects. (2)—Eleven caterpillars; chinch bug *(Nysius vinitor)*; larva of ant-lion; bits of small weevils; head of meat-ant *(Iridomyrmex detectus*, var.

---

(1) In this stomach there were four nematode worms, one with its head buried in the stomach wall; they are evidently true stomach parasites, and the first I have ever seen from a bird, although in the intestines and elsewhere in many birds nematode and tapeworms are abundant.

(2) Identifications by Mr. F. R. Zietz.

viridiaeneus); ichneumon fly; head of small bee; many other fragments of insects. (3)—Twenty heads and other fragments of scutellerid plant bugs; head of small ant *(Pheidole*, soldier). (4)--Eleven caterpillars; bits of thin reed-bugs; bits of several species of small weevils. (5)—Heads of three jassid bugs; several plant bugs; bits of three spiders; many other fragments of insects.

Melanodryas cucullata vigorsi.—(1)—One large and six small caterpillars; bits of large wingless grasshopper; bits of weevil *(Polyphrades)*; other fragments of insects. (2)—Seven caterpillars; bits of young grasshopper; numerous small weevils *(Titinia)* and bits of same; meat-ant *(Iridomyrmex detectus)*; many other fragments of insects.

Smicrornis brevirostris mathewsi.—Head of minute chalcid wasp; many very minute fragments of insects.

Lewinornis rufiventris maudeae.—(1)—Small cockchafer beetle *(Liparetrus)*; bits of longicorn beetle *(Symphyletes)*: bits of meat ant *(Iridomyrmex detectus*, var. *viridiaeneus)*; head of male ant: bits of plant bugs: many fragments of insects. (2)—Ichneumon fly: numerous small weevils *(Polyphrades)*; bits of plant bugs; many fragments of insects.

Leucocirca tricolor—Common blow-fly and parts of two others; small fly; two carrion beetles *(Saprinus cyaneus)*; two small jassid bugs; larval ground bug; small bit of ant.

Pteropodocys maxima.—Remains of at least six species of grasshoppers; larva of mantis; larva of very small mantis *(Huania)*; larva of walking-stick insect *(Cyphocrania cornuta)*; of another species *(Bacteria* [?]); very young larva of another species; small pebble.

Coracina novae-hollandiae melanops.—(1)—Bits of two weevils *(Polyphrades)*; several lerp scales; thirteen six-lobed yellow berries *(Loranthus exocarpi)*; some slimy material, probably from berries; bits of leaves. (2)—Weevil (small *Oxyops)*; bits of other weevils (probably *Gonipterus* and *Polyphrades)*; eight subelliptic seeds *(Melothria maderaspatana* [?]).

Samuela cinnamomea.—(1)—Many small caterpillars; two brown seeds; one smaller brown seed; one still smaller brown seed; one black seed *(Portulaca oleracea)*; hundreds of thin pale seeds (a grass); much small grit. (2)—Elytron and abdomen of carabid beetle; a few black seeds *(Portulaca oleracea)*; many reddish-brown seeds *(Hibiscus)*; very many small reddish seeds *(Setaria viridis)*: much small grit. (3)—Head of small ant, long reddish seed *(Erodium cygnorum)*; many curved brownish seeds *(Legume)*; fourteen kidney-shaped seeds *(Caryophyllaceae* [?]); many small red seeds;

much small grit. (4)—Many of the three first kinds of seeds as in the third stomach; much small grit; no insect remains. (5)—Thorax of ant; many of the three first kinds of seeds as in the third stomach; three other seeds *(Hibiscus)*; growing seed (?); much small grit. (6)—Many of the three first kinds of seeds as in the third stomach; four other kinds of seeds; much small grit; no insect remains.

Morganornis superciliosus.—(1)—Wattle beetle *(Calomela)*; leaf-eating beetle *(Paropsis* of the *verrucosus* group); scutellerid plant bug; many minute fragments of beetles and of plant bugs. (2)—Nine caterpillars; six heads and many fragments of scutellerid plant bugs; fragments of *Paropsis* of *verrucosus* group; elytra of small leaf-eating beetle *(Ditropidus)*; many other fragments of insects.

Calamanthus campestris isabellinus.—(1)—Small curious pirate bug; two heads of small ants *(Pheidole*, soldier); many minute fragments of insects; four curled black seeds *(Portulaca oleracea)*; nine small yellowish seeds *(Setaria viridis)*; many minute reddish seeds *(Caryophyllaceae* [?]); bit of grit. (2)—Young ground cricket *(Gryllus)*; elytra of small carabid beetle; six heads of small ants *(Pheidole*, soldiers); sugar ant *(Camponotus)*; falcis of spider; same kinds of seeds as in first stomach.

Parepthianura tricolor.—(1)—Crammed with minute reddish seeds *(Caryophyllaceae)*; one small dark seed *(Panicum* [?]); small amount of grit; no insect remains. (2)—Twenty-seven small grubs; small flat seed *(Chenopodiaceae)*; some small grit.

Aurepthianura aurifrons.—(1)—Forty-eight small caterpillars or heads of same; larval jassid bug; young grasshopper; elytron of small weevil. (2)—Eight small caterpillars; parts of at least thirty small weevils (probably all of genus *Polyphrades)*. (3)—Heads of two ants *(Pheidole*, soldier, and probably male of same species); elytron of small ladybird *(Rhizobius* [?]); many small rough black seeds.

Acanthiza marianae.—Leaf-eating beetle *(Ditropidus)*; large thrips *(Idolothrips spectrum)*; head of small jassid bug; small chalcid wasp; part of cephalothorax of spider; many minute fragments of insects.

Acanthiza uropygialis condora.—(1)—Lace bug; wings, heads, etc., of male ants; two lerp scales; elytron of weevil; legs of spider; many other fragments of insects; four dark-brown seeds *(Portulaca oleracea)*. (2)—Caterpillar; two leaf-eating beetles *(Ditropidus)* and bits of three others; bits of spiders. (3)—Four very young grasshoppers; bits of jassid bugs.

Geobasileus chrysorrhaus addendus.—(1)—Two caterpillars; elytra of small beetle *(Formicomus)*; some minute fragments of insects. (2)—Four caterpillars; bits of weevil; larva of water bug; small jassid bug; many minute fragments of insects. (3)—Four caterpillars; small weevil *(Desiantha)*; three small jassid bugs; many minute fragments of insects. (4)—Many small caterpillars: head of small scutellerid bug.

Pyrrholaemus brunneus.—(1)—Two small rat-tailed maggots; head of blow-fly; young grasshopper; head of minute weevil; two rough black seeds; many small curved seeds. (2)—Fragments of young grasshoppers; small caterpillar; head of male ant; head of small butterfly; dirty straw-coloured seed *(Setaria viridis)*. (3)—Three caterpillars; bits of two small butterflies; many minute pale seeds *(Panicum effusum)*; bits of two berries *(Enchylaena tomentosa* [?]). Many small caterpillars and one large one; remains of young grasshopper; heads of two small butterflies; larva of ant-lion(3); many minute pale seeds *(Panicum effusum* [?]). (5)—Nine caterpillars; two small moths; head of small ant; bits of two small spiders; some fragments of insects; eleven ribbed brown seeds *(Scirpus)*; three thin pale seeds (a grass). (6)—Many minute fragments, probably of small beetles and ants; some small grit; one small pale seed *(Panicum effusum* [?]).

Malurus melanotus callainus.—(1)—Caterpillar; sixteen small black ants and remnants of many others; many small black seeds *(Portulaca oleracea)*; two slightly larger dark-brown seeds; small grit. (2)—Numerous fragments of two species of small ants *(Iridomyrmex)*; small ant *(Meranoplus)*; fragments of other genera of small ants; small stone-fly *(Neuroptera)*; similar seeds to those of first stomach. (3)—Many fragments of small ants, mostly of genus *Iridomyrmex*; portion of head of larger ant; several small black seeds *(Portulaca oleracea)*.

Diaphorillas textilis purnelli.—(1)—Bits of several species of ants, including *Ectatomma metallicum*; many minute fragments of insects; many brown seeds *(Hibiscus)*; some small grit. (2)—Innumerable very minute fragments of insects *(Aphides* [?]); seven rounded blackish seeds; three curved black seeds *(Composite)*; five thin reddish seeds *(Erodium cygnorum)*; one pale seed similar in appearance to that of passion fruit; two rounded brownish seeds *(Melothria maderaspatana* [?]); one minute pale seed *(Setaria viridis)*.

---

(3) This is a most curious specimen; it is thickly covered with small clubbed hairs, suggestive of the sticky ones of Droseraceous plants. A similar larva was seen in a stomach of *Neopsitta pileata tenuirostris*.

(3)—Innumerable fragments as in first stomach; fragments of male ants; two small beetles near *Caediomorpha;* twenty triangular black seeds; two round blackish seeds; small grit.

Eyramytis, sp. [?].—Fragments of small weevil: many shining black seeds; many small reddish seeds *(Caryophyllaceae);* nine pale seeds *(Setaria viridis);* fine grit.

Austrartamus melanops.—Bits of carabid beetles *(Dicrochile goryi* and *Chlaenioidius herbaceus);* male of greenhead ant *(Ectatomma metallicum);* soldiers and many workers of small ants *(Pheidole);* bits of sugar ant *(Camponotus*, soldier); head of small bee; bits of plant bugs; many other fragments, mostly of ants.

Colluricincla rufiventris whitei.—(1)—Seven caterpillars; three young grasshoppers; elytra of two weevils *(Polyphrades* [?]); legs of larger weevil *(Leptops* [?]); bits of plant bugs; many fragments of insects. (2)—Twelve caterpillars; grasshopper *(Choriphistes cyanopterus);* nine young grasshoppers or parts of same; fragments of land-shell.

Oreoica cristata clelandi.—(1)—Bit of elytron of longicorn beetle *(Symphyletes);* fragments of ants, of weevils, and of spiders; reddish seed *(Erodium cygnorum);* hundreds of thin straw-coloured seeds (grass); bits of berries (?). (2)—Several soldiers and workers of white ants; bits of many stinging ants *(Ectatomma* or allied genus); many fragments of insects; some vegetable matter; two buds of plants (?).

Aphelocephala castaneiventris whitei.—(1)—Large caterpillar; nineteen grain-like seeds and fragments of many others *(Setaria viridis);* small amount of grit. (2)—Minute fragments of weevils; many small grain-like seeds *(Setaria viridis);* two pale brownish seeds *(Caryophyllaceae);* three small reddish seeds *(Caryophyllaceae);* very fine grit.

Aphelocephala pectoralis.—(1)—Caterpillar; remains of many small weevils *(Polyphrades* [?]); three thin pale seeds *(Panicum);* many small rounded seeds; small grit. (2)—Bits of minute beetle *(Formicomus);* eight thin pale seeds (grass); one flat pale seed; many minute black seeds *(Portulaca oleracea);* many minute reddish seeds *(Setaria viridis);* one somewhat larger reddish seed *(Caryophyllaceae);* two granular black seeds; small grit. (3)—Fourteen small pale seeds *(Setaria viridis);* one very small reddish seed *(Caryophyllaceae);* eight thin pale seeds *(Panicum)*; small grit; no insect remains. (4)—Bit of scutellerid bug; many small grain-like seeds; five smaller pale seeds; one small pale seed *(Portulaca oleracea);* one long reddish seed *(Erodium cygnorum);* small grit. (5)—Crammed with small pale seeds *(Caryophyllaceae);* slight amount of grit; no insect remains.

Aphelocephala nigricincta.—Bit of abdomen of ant; about twenty seeds of grass; many minute reddish seeds *(Setaria viridis);* small amount of grit.

Sphenostoma cristatum pallidum.—(1)—Stomach filled with small reddish seeds *(Caryophyllaceae)* and some fine grit; bits of legs of small plant bugs. (2)—Seeds and grit as in first stomach; no insect remains.

Neositta pileata tenuirostris.—(1)—Two caterpillars; larva of ant-lion; fragments of at least eighteen small weevils *(Xeda).* (2)—Young grasshopper *(Choryphistes);* twenty-three small weevils *(Xeda)* or fragments of same; legs of spider.

Climacteris erythrops superciliosa. — (1) — Numerous minute ants *(Iridomyrmex gracilis spurcus);* two heads of sugar ants *(Camponotus);* part of small weevil *(Polyphrades).* (2)—Very many minute ants *(I. g. spurcus);* numerous meat ants *(Iridomyrmex detectus,* var. *viridiaeneus);* head of ant *(Podomyrmex bimaculata);* bit of small weevil *(Polyphrades);* caterpillar. (3)—Over 500 minute ants *(I. g. spurcus);* many meat ants *(I. d. viridiaeneus);* head of small sugar ant *(Camponotus).*

Pardalotinus rubricatus pallidus.—(1)—Fragments of a fly (blowfly [?]); fragments of lerp scales. (2)—Small bee; two female thynnid wasps; bits of syrphus fly; remnants of lerp scales.

Pardalotinus striatus finkei.—Part of head of fly; bits of spiders; many fragments of insects.

Gliciphila albifrons.—Fragments of small bees and probably of other small *Hymenoptera.*

Certhionyx variegatus.—Over one hundred small caterpillars; wattle beetle *(Calomela).*

Meliphaga sonora.—Small ichneumon fly; many minute fragments, mostly of ants.

Lichenostomus plumulus ethelae.—(1)—Many fragments of very small bees; down-like feathers. (2)—Bits of small weevil *(Gerynassa* [?]); bit of small carabid beetle; head of jassid bug; small moth; small ichneumon fly; many minute fragments of insects. (3)—Bits of small and medium size ants; head of small bee; many fragments of insects. (4)—(Young bird). Ten caterpillars; three jassid bugs; young grasshopper; heads of blow-flies; lerp and several lerp scales; many spiders; many fragments of insects.

Ptilotula penicillata leilavalensis.—Two caterpillars; small moth; bits of small weevil *(Melanterius);* bits of two species of small ants; head of small male ant; fragment of coreid bug; many other fragments of insects.

Myzantha flavigula.—(1)—Small caterpillar; bits of weevil (*Gonipterus* or *Oxyops*); bits of leaf-eating beetle (*Paropsis* of the *verrucosus* group): head of ant; falcis of spider. (2)—Four caterpillars; two weevils (small *Oxyops*).

Acanthogenys rufogularis cygnus.—Many fragments of weevils (*Polyphrades* and *Titinia*); small jassid bugs; many other fragments of insects.

Anthus australis adelaidensis. — (1) — Two small weevils (*Titinia*) and fragments of many others; bits of a somewhat larger weevil (*Polyphrades* [?]; bits of a young grasshopper; fragments of plant bugs: some small grit. (2) — Twenty-six heads and many fragments of small ants (*Pheidole*, soldiers); several heads of small ants (*Iridomyrmex*); head of sugar ant (*Camponotus*, soldier); thorax and wings of male ant; young grasshopper; many fragments of insects; small flat seed (*Portulaca oleracea*). (3)—Two large caterpillars; one small one; two heads of small pirate bugs; other insect fragments. (4)—Two young grasshoppers; heads and fragments of many small weevils (*Titinia*); elytra of somewhat larger weevils (*Prosayleus* [?]); fragments of plant bugs; elongate black seed; small amount of grit.

Neostrepera versicolor plumbea.—(1)—Lizard (*Tympanocryptus lineata* (4)); three small ants (*Iridomyrmex nitidus*); fragments of amycterid weevil, of cockroach, and of spider. (2)—Fragments of amycterid weevil (*Sclerorhinus*); falces and legs of spider; fragments of cockroach.

(*f*) LACERTILIA.

By F. R. Zietz.

[*Contribution from the South Australian Museum.*]

The collection contains 130 specimens, comprising 19 species. Most of them are met with generally in the interior, and were previously recorded by the Elder and Horn Expeditions. Of special interest is the rediscovery of *Amphibolurus rufescens*, first collected by Mr. R. Helms on the Elder Expedition in 1891. Field notes by Captain White are appended and enclosed in brackets.

(4) Identification by Mr. F. R. Zietz.

GECKONIDAE.

CERAMODACTYLUS DAMAEUS, L. and F.

Between Everard and Indulkana Ranges; Wantapella Swamp.

HETERONOTA BYNOEI, Gray.

Moorilyanna Native Well: between Everard and Musgrave Ranges; Tablelands, 100 to 200 miles north-west of Oodnadatta. [Generally found under stones, sometimes under bark or logs.]

DIPLODACTYLUS CILIARIS, Boulgr.

Wantapella Swamp; from Musgrave Ranges to Moorilyanna Well; from Flat Rock Hole to Musgrave Ranges. [They were fairly numerous, and found under bark and in hollow branches of the mulga. When captured, they rubbed their tails against the hand and emitted a sticky and most objectionable smelling exudation from their caudal spines.]

GEHYRA VARIEGATA, D. and B.

Everard Range; Wantapella Swamp; from Musgrave Ranges to Moorilyanna Native Well. This appears to be one of the commonest species, twenty-six specimens having been collected. [Found under bark and stones, sometimes in hollow logs. Their colouration closely resembles that of their surroundings.]

PYGOPODIDAE.

DELMA FRASERI, Gray.

Between Musgrave and Everard Ranges.

LIALIS BURTONII, Gray.

Indulkana, Everard Range.

AGAMIDAE.

AMPHIBOLURUS MACULATUS, Gray.

Between Everard and Indulkana Ranges; Wantapella Swamp. [It is very quick in its movements, and is mostly found amongst the Porcupine grass. When basking in the sun its bright colouration is well shown, the black patch on the throat being very conspicuous.]

AMPHIBOLURUS RETICULATUS, Gray.

Musgrave and Everard Ranges; Wantapella Swamp. [Although thirty-two specimens of this lizard were captured, it was not found to be so numerous as on my trip from Oodnadatta to the MacDonnell Ranges during the previous year. It burrows in the sand, and is often seen looking out of the burrow, evidently watching for prey. It is not so fleet as other members of this group, and often falls a victim to hawks.]

AMPHIBOLURUS RUFESCENS, S. and Z.

Three adult specimens of this little-known lizard were collected, two at the Everard Range and one at Wantapella Swamp. The type, an adult, and also two immature specimens, were taken by Mr. R. Helms on the Elder Exploring Expedition in 1891, (1) at Mount St. Thomas, Birksgate Range, about 100 miles west of the present record. Two of the recent specimens have complete tails, and thus enable me to give the correct caudal measurements, the tail in the type being incomplete. Unfortunately the largest specimen collected by Captain White also has a damaged tail, a portion of it being reproduced; it would have been much longer if uninjured. The number of femoral pores varies, but in all other respects these specimens agree with the type. To my knowledge only six examples are known to science, and they are contained in the South Australian Museum collection.

	a	*b*	*c*	*Type*
Total length	245 mm.	282 mm.	265 mm.	228 mm.
Head	27 mm.	25 mm.	22 mm.	22 mm
Body	70 mm.	67 mm.	56 mm.	66 mm.
Tail	148 mm. (incomplete)	190 mm.	187 mm.	140 mm. (incomplete)
Width of head	18 mm.	18 mm.	17 mm.	18 mm.
Front leg	38 mm.	38 mm.	36 mm.	35 mm.
Hind leg	84 mm.	80 mm.	76 mm.	78 mm.
Fem. and Preanal Pores	24 dex. 21 sin.	28 - 28	31 - 31	29 - 29

[This lizard was found on or near red granite rocks, and its colouration harmonizes wonderfully with its surroundings. It is such a fast runner that the only way to procure specimens was to shoot them. When running it carries its body erect, touching the ground with the hind feet only, and maintaining its balance with the long slender tail.]

---

(1) Proc. Roy. Soc., S.A., xvi., 1893, p. 164, pl. vi., figs. 2 and 2*a*.

Amphibolurus barbatus, Cuv.

Vaughan Hill; Everard Range.

Tympanocryptis lineata, Peters.

Everard and Indulkana Ranges. [Found on the sandy plains and in mulga scrub, under stones and also in burrows, to which it retreats when danger threatens.]

Tympanocryptis cephalus, Günth.

Oodnadatta to Todmorden; Everard Range.

VARANIDAE.

Varanus gilleni, L. and F.

Wantapella Swamp: between Everard and Musgrave Ranges.

SCINCIDAE.

Egernia whitii, Lacép.

Oodnadatta; Wantapella Swamp; Musgrave Ranges.

Hinulia lesueurii, D. and B.

Everard and Musgrave Ranges.

Hinulia fasciolata, Günth.

Everard Range; Wantapella Swamp.

Rhodona gerrardi, Günth.

Musgrave Ranges to Moorilyanna Native Well.

Rhodona bipes, Fischer.

Tablelands 100 to 200 miles west of Oodnadatta.

Ablepharus lineo-ocellatus, D. and B.

Moorilyanna Native Well to Everard Range.

(*g*) MOLLUSCA (Pulmonata).

By A. R. Riddle.

Of the shells secured by Captain White, at least three species are represented. The writer is indebted to Dr. J. C. Verco for the opportunity of examining types and other specimens in both his own and the Museum collections, and also to Mr. C. Hedley, Assistant Curator and Conchologist to the Sydney Museum, for the opportunity of consulting the literature in that institution, as well as placing under contribution his own expert knowledge of Australian land shells.

Xanthomelon perinflatum, Pfeiffer.

Helix perinflata, Pfeiffer: P.Z.S., 1863, p. 528.

Xanthomelon perinflatum, Hedley: Rpt. Horn Sc. Exp. to Cent. Aust., 1896, pt. ii., p. 224.

The specimens obtained comprise both live and dead shells. The live shells show but very faintly the broad rufous band, just above the periphery, which was a marked feature in many of the Elder Expedition shells. (1)

Captain White writes:—"The dead and bleached shells of this species were very numerous all through the country, between Moorilyanna Native Well and the Musgrave and Everard Ranges, more especially on the rising ground near those ranges. Where the shells occurred in large numbers quantities of leaves and dried herbage were found among them, which suggests that during good seasons a creeping herbage covers the ground into which the snails make their way. Live shells were taken in Glen Ferdinand (Musgrave Ranges) and in the Everard Range. In both cases they were found sealed with the epiphragm, lying under debris in creek beds. This shell, no doubt, provides an article of food for the natives, as large quantities were found heaped up near the remains of old fires. This species is also collected in great numbers by the Bower-bird (*Chlamydera maculata macdonnelli*) in the Everard Range, and is found heaped up at the entrance to their play-houses."

Among the shells is a single immature specimen, the identification of which is somewhat uncertain. It shows a close likeness to the immature shells in a series of *X. perinflatum* in the Adelaide Museum collections, but the slight callus on the columella is brownish.

Bednall, (2) in the Elder Expedition results, gives an account, under *Helix perinflata*, of some dwarf shells resembling *H. flindersi*, but lacking the colour-band of that species.

---

(1) *Vide* Bednall: Trans. Roy. Soc., S.A., vol. xvi., p. 62.

(2) *Loc. cit., supra.*

"The shell is of a uniform greenish hue, with a shining vitreous appearance." This description fits the present specimen very well.

The specimen was taken with *Xanthomelon adcockianum* and *Chloritis squamulosa.*

XANTHOMELON ADCOCKIANUM, Bednall.

Hadra adcockiana, Bednall: 1894, Trans. Roy. Soc., S.A., vol. xviii., p. 190.

Xanthomelon adcockiana, Hedley: 1896, Rpt. Horn Sc. Exp., pt. ii., p. 224.

The writer proposes to place under this head three somewhat immature shells taken with *Chloritis squamulosa.* They agree almost entirely with Tate's "*Forma typica,*" (3) one of the three groups into which he subdivided this species. Probably the immaturity of the present shells accounts for the slight differences. Compared with the Adelaide Museum specimens, determined by Mr. Bednall, they agree well, although they are slightly more elevated. They have not, however, the height of *X. everardensis.* In common with the Museum specimens, they are of light-yellow to yellowish-green colour, with well-defined narrow fuscous bands. The type, however, was opaque-white with fuscous bands.

They were taken at Moorilyanna Native Well, under native fig trees *(Ficus platypoda).*

Captain White writes:—"Great quantities of fallen leaves and fruit had collected between the rocks, and it was under this debris that the shells were taken."

CHLORITIS SQUAMULOSA, Tate.

Hadra squamulosa, Tate: 1894, Trans. Roy. Soc., S.A., vol. xviii., p. 193.

Chloritis squamulosa, Tate: 1896, Rpt. Horn Sc. Exp., pt. ii., p. 198, pl. xviii., fig. 10.

Xanthomelon squamulosa, Hedley: 1896, Rpt. Horn Sc. Exp., pt. ii., p. 225.

One live specimen only was obtained with the *X. adcockianum.* The shell is larger than the type, and measures 17 mm. (greatest diameter) by 9 mm. (height). The reference of this species to *Xanthomelon* in 1896, by Mr. Hedley, was done on the evidence derived from an imperfect dissection sent by Prof. Tate. In a recent communication, Mr. Hedley states his preference for *Chloritis*, and mentions the possibility of an error having been made in the labelling of the dissection in question.

---

(3) *Vide* Tate: Rpt. Horn Sc. Exp., pt. ii., p. 198.

(*h*) ARACHNIDA.

By W. J. Rainbow, Entomologist to the Australian Museum, Sydney.

Plates LXVII. and LXVIII.

At the request of Captain S. A. White I have examined a collection of Arachnida made by him during an expedition to Central Australia. Naturally, the collection—small though it be—contains some novelties; and descriptions of, and notes upon, these will appear in the following pages of this paper. Some of the forms collected, of course, call for no special comment. Very little has hitherto been made known by naturalists of the Arachnid fauna of the interior of this continent; but this is not much to be wondered at when we consider the arid nature of the country and the difficulties and hardships of travel.

In 1896 Mr. H. R. Hogg, M.A., worked out the *Araneidae* of the Horn Exploring Expedition in the "Report of the Work of the Horn Scientific Exploring Expedition to Central Australia, Part ii., Zoology"; later, Embrik Strand, in "Zoologischen Jahrbüchern," 1913, contributed an interesting addition to our knowledge of this branch of our endemic fauna—a paper in which he not only recorded some species already described, but gave descriptions of forms new to science; finally, in 1914, my esteemed friend, Dr. R. H. Pulleine, of Adelaide, in the "Transactions of the Royal Society of South Australia," vol. xxxviii, published a brief list of a small collection of *Araneidae* made by Captain S. A. White. Each of the papers referred to above are of value, inasmuch as they extend our knowledge of range and distribution. Some of the species enumerated by these authors are also recorded below, as they form part of the collection submitted to me; but in addition to these some new genera and species are defined. The new material includes some particularly interesting forms, such as *Aganippe whitei*, in the *Aviculariidae*; *Argyrodes binotata*, in the *Theridiidae*; two species of *Argiopidae*, for which I propose the names of *Dolophones intricata* and *D. thomisoides*; and two *Thomisidae* —*Tmarus punctatus* and *Diaea pulleinei*.

Of great interest is the announcement of the occurrence of the family *Prodidomidae* in Australia. The species referred to, while being a true *Prodidomid*, renders the creation of two subfamilies, as well as that of a new genus and species, necessary, and fuller details of this interesting fact will be found a little further on in this paper. Another interesting species, and one that I propose to call *Lycosa nigropunctata*, was also collected by Captain White. This is one of those *Lycosids*, the females of which make a lid or trap-door to their burrows. Finally, I record a new genus and species of the family *Oxyopidae*, for which I propose the name *Pseudohostus squamosus*, and to the notes upon this I refer the student. In the following pages there are enumerated two scorpions and twenty-nine spiders, and of these latter eleven are recorded as new, whilst one is the description of what I take to be the male of a previously known species—*viz.*, *Echemus griseus*, L. Koch. Two new subfamilies and two new genera are also defined.

Some of the material obtained by Captain White was too immature to be of value, but this is always so in collections of this branch of the fauna, and some were damaged. This latter contingency, as pointed out by Dr. Pulleine in his paper already referred to, could not possibly be avoided, owing to the softness of the animals' bodies, the roughness of the country over which they had to be conveyed, and the manner of their transport.

Suborder SCORPIONIDAE.

Family BUTHIDAE.

ISOMETROIDES (?) VESCUS, Karsh.

Isometrus vescus, Karsh: Schrift. der Ges. nat. Freunde, 1880, p. 56.

Isometroides vescus, Karsh: Keys, in Die Arach. des Aust., Suppl., 1884, p. 17, pl. ii., fig. 3.

Hab.—Everard Range to Wantapella Swamp.

Note.—Karsh's paper is inaccessible to me, but Keserling gives a lengthy description and a figure in his supplement to Ludwig Koch's monumental work. Unfortunately the latter author's specimen (which is in the collection of the University of Berlin, and is vaguely labelled "Australie") was damaged, for the writer says:—"Sturnum und Kämme fehlen leider dem vorliegenden Exemplare." Consequently I must let Captain White's specimen (of which only one example was taken) remain for the present as quoted above. *I. vescus* is the type of the genus.

Family SCORPIONIDAE.

URODACUS WOODWARDI, Poc.

Ann. Mag. Nat. Hist. (6), xii., 1893, p. 322, pl. xiv., figs. 8 and 9; *op. cit.* (7), ii., 1898, p. 63.

Hab.—Musgrave Ranges and Oodnadatta to Todmorden; originally recorded from the Darling Range, Western Australia.

Suborder ARANEIDAE.

Family AVICULARIDAE.

The collection contains only one trap-door spider, and this I have named *Aganippe whitei*, in honour of Captain White, the collector. The genus *Aganippe*, O. P. Cambr., is exclusively Australian, and the form described below makes the seventh species known to naturalists.

AGANIPPE WHITEI, n. sp.

Pl. lxvii., figs. 1 and 2.

♀. Cephalothorax (not including *falces*), 8·5 mm. long, 6 mm. broad; abdomen, 13·4 mm. long, 7·5 mm. broad.

Cephalothorax yellow-brown, smooth, shining. *Pars cephalica* arched, raised, sloping backwards to thoracic fovea; sides darker than summit; a few scattered, short, bristly hairs are distributed over the surface, in addition to which there are also two or three long ones at rear of eyes; running down the middle there is a finely pencilled dark line, upon which are a few short adpressed black hairs, and this line is bifurcated in front; *ocular area* broader than long; immediately in front of *caput*, and between the front eyes, there is a group of long, coarse, black bristles (fig. 1); *clypeus* broad, pallid, indented at middle. *Pars thoracica* arched, broad; *thoracic* fovea deep, procurved; *marginal band* broad, pallid, fringed with short dark hairs. *Eyes* in three series of (reading from the front) 2, 2, 4; the two front eyes and lateral eyes of rear row large and of equal size; anterior median eyes considerably smaller, while the posterior median pair are minute; anterior eyes separated from each other by a space equal to once their individual diameter, and the front median pair from each other by a space equal to about one-half their individual diameter; posterior median eyes widely separated from each other (fig. 1). *Legs* concolorous with cephalothorax short, tapering; third and fourth pairs strongest; *tarsi* of first and second pairs scopulated; each leg densely clothed with long coarse hairs, and armed with strong black spines; superior claws long and serrated; inferior claw minute. Relative lengths, 4, 1, 2, 3. *Palpi* long, similar in colour, clothing, and armature to legs; tarsi scopulated. *Falces* rather darker than cephalothorax, porrected, arched, clothed with coarse hairs or bristles, and each furnished with a *rastellum*; outer angle of the furrow of each falx armed with ten strong teeth and the inner angle with eight; intermediately between these two rows there are, at the base, three small teeth (fig. 2); *fang* long, shining, almost black, well curved. *Maxillae* reddish-brown, hairy, apices widely divergent; inner angles fringed with long yellowish hairs. *Labium* concolorous, arched, hairy, broader than long, submerged. *Sternum* yellow-brown, pyriform, narrowest in front, arched, clothed with long coarse bristles; *sigilla* moderately large, removed from margin, not distinct. *Abdomen* elongate, somewhat obovate, yellow-brown, faintly mottled, pilose, and furnished with a few adpressed bristles on upper surface; a distinctly visible yellowish tapering line or bar runs down the middle, and this median line is broadest in front; towards anterior extremity of this bar there is on each side a large but faintly-defined round spot; near posterior extremity there are four pairs of short, faintly distinguishable lateral transverse bars, and these are directed downwards, each pair describing a chevron broken at the centre; at anterior extremities the abdomen is somewhat darker in colour; inferior surface pilose, dull yellow, clouded with somewhat darker patches. *Spinnerets* short, yellowish, hairy; superior mammillae stout, first joint as long as second and third combined; third joint minute, dome-shaped: inferior mammillae very short and separated from each other by a space equal to about once their individual length.

Hab.—Between Musgrave and Everard Ranges.

Family DICTYNIDAE.

AMAUROBIUS ROBUSTUS, L. Koch.

Die Arach. des Austr., i., 1872, p. 331, pl. xxxvi., figs. 5 and 5*a*.

Hab.—Wantapella Swamp, South Australia. Ranges from Northern Queensland to Western Australia.

Note.—*A. robustus* is evidently a variable species, which one would naturally expect from its being so common and so widely distributed. During the last twenty-five years I have examined very many specimens, but cannot recall one which did not differ in abdominal ornamentation from Koch's figure. Captain White's specimen shows (when in alcohol) distinct chevrons.

Family PRODIDOMIDAE.

One of the most interesting specimens collected by Captain White is a species which I take to be representative of the above family. This family is a very small one, and its range, according to Simon,(1) is as follows:—

Prodidomus, Hentz.: "Regio mediterranea calid., Hispania merid., Barbaria, Egyptus et Syria; Africa austr.; Arabia merid.; India orient.; Nova-Caledonia; America sept. et merid.; Venezuela."

---

(1) Simon: Hist. Nat. des Araign., i., 1892 (1893), pp. 337 and 338.

Eleleis, Simon: "Africa max. australis."

Zimiris, Simon: "Arabia merid.; India; et fortasse Malaisia."

In the "Proceedings of the Californian Academy of Sciences," 3rd series, i., No. 7, 1898, p. 225, Nathan Banks described a Mexican species, for which he proposed the name *Zimiris pubescens*. This Simons considers to be the type of another genus, to which he gave the MS. name *Neozimiris*.⁽²⁾

Taking into consideration the distribution of the family as thus defined, it is only natural to suppose the possibility of its occurring in Australia. The form described below differs essentially from any of the species recorded to the genera above quoted. If my determination as to its systematic position be correct, then, for the convenience of classification, two subfamilies will have to be created, as well as a new genus. For the reception of the genera above quoted I propose the subfamily *Prodidominae*, and for the genus hereunder described *Cryptoerithinae*.

In speaking of the *Prodidomidae*, Professor Comstock says⁽³⁾:—"The *prodidomids* are two-clawed, eight-eyed spiders, with dissimilar eyes in three rows, and very robust chelicerae, which are furnished with very long and slender claws" [fangs. —W.J.R.]. The species described below, while displaying these points in the main, presents certain features widely distinct. In all *Prodidomids* hitherto known the eyes are arranged in three rows, reading from the front of 4, 2, 2, while in the species now under study, and for which I propose the name *Cryptoerithus occultus*, the formula is 2, 4, 2. Another point of interest is that instead of six spinnerets there are only four, of which two are extremely minute, and are ensconced in a deep pit or depression at the posterior extremity of the abdomen, and two very long, cylindrical ones situated on the underside, and at some little distance from the extremity. The latter pair are placed close together and almost touch each other; the minute pair, on the other hand, are decidedly difficult to trace, and this difficulty is increased owing to the abundance of comparatively long hairs within the cavity, and which surround them. In outline the cephalothorax is somewhat like *Eleleis*, Sim.

Simon, in his monumental work,⁽⁴⁾ gives a lucid outline of the *Prodidomidae*, and to this the student is directed. I

---

(2) Simon: *op. cit.*, ii., 1897 (1903), p. 984.

(3) Comstock: "The Spider Book," 1912, p. 308.

(4) Simon: *op. cit.*, pp. 332-336.

give herewith a few points defining the two subfamilies as I understand them:—

Cephalothorax oval, obtuse in front, obtusely truncated at rear, and having a small median hollow depression; *ocular area* longer than broad. *Eyes*, eight; in three rows of 4, 2, 2. *Legs:* in *Prodidomus* and *Eleleis* short; in *Zimiris*, the metatarsi and tarsi scopulated. *Falces* robust, convex at base; apices attenuated and divergent. *Labium* free, short, flat, apex attenuated, obtuse or truncated. *Sternum* flat, broadly oval, anterior angle rounded, posterior extremity acuminate, and terminating between fourth pair of coxae. *Abdomen* oval. *Spinnerets*, six ... .. PRODIDOMINAE

Cephalothorax obovate, obtuse in front; *ocular area* longer than broad; *median fovea* elongate, and having the appearance of a sharp deep cut. *Eyes*, eight; in three rows of 2, 4, 2. *Falces* moderately long, robust; *fang* long. *Legs* long. *Maxillae* robust, arched, apices obtuse and inclining inwards, acuminate, rounded at heel. *Labium* free, rather longer than broad, acuminate, coniform. *Sternum* somewhat cordiform, anterior extremity acuminate, and terminating between fourth pair of coxae. *Abdomen* oval. *Spinnerets*, four; superior pair minute, and located within a deep recess or pit at posterior extremity of abdomen; inferior mammillae very long, cylindrical, two-jointed, basal joint minute ... ... CRYPTOERITHINAE

Subfamily CRYPTOERITHINAE, n. subf.

CRYPTOERITHUS,⁽⁵⁾ n. g.

Pl. lxvii., figs. 3, 4, and 5.

Cephalothorax obovate, arched, anterior extremity obtuse, narrow, posterior extremity truncated. *Pars cephalica* not raised; *ocular area* longer than broad. *Pars thoracica* broad, radial grooves not distinct; *median fovea* a longitudinal slit. *Eyes*, eight, arranged in three rows of 2, 4, 2 (fig. 3). *Legs* long, tapering, hairy, bespined. Relative lengths, 4, 1, 2, 3. *Palpi* moderately long. *Falces* moderately robust and moderately long; *fang* long. *Maxillae* not long, robust, arched, apices obtuse and inclining inwards. *Labium* free, short, slightly arched, apex acuminate, rather longer than broad, coniform. *Sternum* large, broad, slightly arched, somewhat cordiform, anterior angle rounded, posterior extremity acuminate and terminating between posterior coxae,

---

(5) κρυπτω=to hide; ἐριθος=a spinner.

which latter are much longer than their neighbours. *Abdomen* oval. *Spinnerets*, four. Superior pair minute and located in a deep posterior abdominal depression; inferior pair long, cylindrical.

CRYPTOERITHUS OCCULTUS, n. sp.

♀. Cephalothorax, 1·5 mm. long, 1·2 mm. broad; abdomen, 2·5 mm. broad, 1·6 mm. long.

Cephalothorax yellow, obovate, arched, moderately clothed with long black hairs. *Pars cephalica* sloping forward, not higher than thoracic segment, obtuse in front, arched, segmental groove faintly distinct; *ocular area* broader than long; *clypeus* not deep. *Pars thoracica* broad, convex, sloping sharply to the rear, posterior angle truncated and indented; *median fovea* elongate, and having the appearance of a sharp, deep cut; *marginal band* narrow, thickly fringed with short black hairs (fig. 3). *Eyes*, eight; arranged in three rows of 2, 4, 2; large, compactly grouped; median pair (second row) slightly the largest of the series; anterior eyes separated from each other by a space equal to about twice their individual diameter; second row slightly recurved; of this row the median eyes are separated from each other by a space equal to about half their individual diameter; lateral eyes are seated close to their inner neighbours, but do not touch; posterior pair wedge-shaped, obliquely placed, the points nearly meeting (fig. 3). *Legs* concolorous with cephalothorax, long, tapering, hairy, armed with moderately long and short strong spines; fourth pair of coxae much the longest; *tarsi* two-clawed; claws small and obscured by tufts of spatulate hairs. Relative lengths, 1, 4, 2, 3. *Palpi* concolorous with legs, moderately long, and similar in clothing and armature. *Falces* concolorous with palpi, moderately robust, tapering, arched, hairy; *fang* long. *Maxillae* pale yellow, almost white, arched, obtusely acuminate, bulging at base, apices inclining inwards and fringed with pale hairs; heel rounded; a few long, stiff bristles distributed over the surface. *Labium* concolorous with maxillae, rather longer than broad, free, slightly arched, apex obtuse; a few stiff, bristly hairs present. *Sternum* somewhat cordate, concolorous with labium, arched, anterior angle curved, posterior extremity acuminate and terminating between fourth pair of coxae; a few long, dark bristles spread over surface; margin reddish-brown; in front of each coxa there is a deep, lateral groove, extending well inwards and concolorous with margin. *Abdomen* oval, overhanging base of cephalothorax, strongly arched, yellow, clothed with short, sooty, adpressed hairs; posterior extremity deeply indented (fig. 4). *Epigynum* a transverse plaque with two transversely oval pits (fig. 5). *Spinnerets*, four; superior mammillae minute, surrounded by dark, coarse hairs, and concealed within a deep recess or pit at posterior extremity of abdomen; inferior mammillae placed closely together, long, cylindrical, hairy, apices obliquely truncate (fig. 4).

Hab.—Flat Rock Hole, Musgrave Ranges, July 13, 1914.

Family DRASSIDAE.

ECHEMUS (?), Sim.

Hemicloea longipes, Hogg: Rep. Horn Expl. Exped., ii., Zool., 1896, p. 337.

Two specimens of what appear to be examples of this genus are included in the collection—one, an immature female, and which it is not possible to determine specifically with safety; and the other a mature male. Both examples are from the same locality, and may possibly be one and the same species. Only two forms of *Echemus* (?) have been described from Australia, *viz.*, *E.* (?) (*Drassus*) *dilutus*, L. Koch, from Rockhampton, Northern Queensland, and *E.* (?) (*D.*) *griseus*, L. Koch., "Neuholland." Both of these were females, and the first-named was immature. In the absence of an adult female, one cannot say with exactitude whether the mature male in this collection is a new species or whether it may not be the unknown male form of *E.* (*D.*) *griseus*, but to that species for the present I associate it, and hereunder give a description.

Hab.—Everard Range.

ECHEMUS (?) (DRASSUS) (?) GRISEUS, L. Koch.

Pl. lxvii., fig. 6.

Drassus griseus, L. Koch: Die Arach. des Aust., i., 1873. p. 391, pl. xxx., fig. 8.

♂. Cephalothorax, 3·5 mm. long, 2·5 mm. broad; abdomen, 4 mm. long, 2 mm. broad.

Cephalothorax ovate, yellow, shining, smooth, arched. *Pars cephalica* sloping forward, obtuse in front, moderately clothed with fine hoary hairs; thoracic segment very faintly defined; *ocular area* broader than long, space between eyes dark-brown; *clypeus* narrow, deep, and fringed with pale hairs. *Pars thoracica* highest at *median fovea*, which latter is a long, deep, narrow cleft, and very distinct, no radial grooves present, posterior angle indented, surface moderately clothed with fine silky hairs; *marginal band* rather broad, fringed with long fine hairs. *Eyes* large, arranged in two rows of four each; both rows strongly recurved, the rear especially so; anterior median eyes dark, all others of a pearl-grey lustre; rear median eyes largest of the group, elliptical, seated obliquely, their rear extremities almost touching. *Legs* concolorous with cephalothorax, long, tapering, clothed with fine hairs and armed with strong spines. *Palpi* moderately long, similar in colour and clothing to legs, heavily spined; *genital bulb* well developed, complicated (fig. 6). *Falces* concolorous with cephalothorax, moderately strong, arched, tapering, hairy; outer angle of the furrow of each falx armed with two large teeth and one small one, and the inner angle with two large teeth: *fang* short, well curved. *Maxillae* concolorous with falces, long, arched, apices obliquely truncated and inclined inwards; inner angle of apices white, heel rounded; a number of coarse black bristles spread over surface. *Labium* yellow, angles and apex white, arched; apex truncated and slightly concave at middle; surface similar in clothing to maxillae. *Sternum* pyriform, yellow, anterior angle rounded, apex acuminate and terminating between fourth pair of coxae, arched and clothed with coarse black bristles. *Abdomen* elliptical, slightly overhanging base of cephalothorax, arched, yellow, clothed with black hairs. *Spinnerets* yellow, elongate, cylindrical, grouped closely together; hairy.

Hab.—Moorilyanna Native Well, July 2, 1914.

LAMPONA PUNCTIGERA, Simon.

Die Fauna Sud-west Aust., i., 1908, p. 399.

Hab.—Moorilyanna Native Well, July 2, 1914. Widely distributed in Northern Australia.

Family ZODARIIDAE.

STORENA FORMOSA, Thor.

Oefv. Kongl. Vet. Akad., Förh., 1870, n. 4, p. 374; L. Koch: Die Arach. des Aust., i., 1872, p. 314, pl. xxv., fig 5.

Hab.—One mature female from ninety miles west of Todhunter, July 8, 1914; and one immature female from under bark, Flat Rock Hole, Musgrave Ranges. A widely distributed species.

Family THERIDIIDAE.

ARGYRODES, Sim.

Only one species of this family was collected, and that the male of an undescribed *Argyrodes*. In my "Census of Australian Araneidae" (6) only three species were recorded; since then I have described another, (7) while at the present moment several distinct forms are in my hands and are awaiting publication.

The specimen obtained by Captain White is an exceedingly small one, but very distinctly marked, and may be easily picked out from its congeners by its ovate abdomen, which latter in most species is gibbous; this part of the body is yellowish-brown and ornamented by two reticulated silvery spots.

---

(6) Rainbow: Rec. Aust. Mus., ix., No. 2, 1911, p. 155.

(7) Rainbow: Mem. Queens. Mus., i., 1912, p. 193, figs. 3 and 4.

ARGYRODES BINOTATA, n. sp.

Pl. lxvii., figs. 7 and 8.

♂. Cephalothorax, 1 mm. long, 0·7 mm. broad; abdomen, 1·5 mm. long, 0·7 mm. broad.

Cephalothorax shining, ovate. *Pars cephalica* dark brown, arched, high, retreating rearwards, sides declivous; *ocular area* broader than long; *clypeus* produced, slightly cleft. *Pars thoracica* arched, dark brown in front, yellowish behind, radial grooves present; *marginal band* narrow. *Eyes* equal in size; distribution normal. *Legs* moderately long and moderately strong, tapering; femur of leg 3 dark-brown, but in legs 1, 2, and 4 white; metatarsi and tarsi yellow; each limb pilose and armed with fine spines. Relative lengths, 1, 4, 2, 3. *Palpi* short, strong, pilose, yellow-brown; genital bulb large, well developed, complicated (fig. 7). *Falces* concolorous with *pars cephalica*, arched, pubescent. *Maxillae* and *labium* concolorous with falces; normal. *Sternum* concolorous with foregoing, elongate, triangular, arched. *Abdomen* ovate, overhanging base of cephalothorax, arched, pubescent, yellowish-brown, upper-surface ornamented by two large, irregularly shaped, reticulated silvery spots (fig. 8).

Hab.—Everard Range, August 14, 1914.

Family ARGIOPIDAE.

NEPHILA EREMIANA, Hogg.

Rep. Horn Expl. Exped., ii., Zoology, 1896, p. 318, pl. xxiv., fig. 3.

Hab.—Female examples, ranging in development from immature to mature, were collected at the following localities:—Ninety miles west of Todmorden, July 8, 1914; Flat Rock Hole, Everard Range, July 22, 1914; and (no date recorded) between Oodnadatta and Todmorden.

DOLOPHONES, Walk.

Two distinct species of this genus were obtained, the first being represented by two examples, of which one is adult and the other immature, whilst the second species is represented by three specimens, none of which have reached the adult stage. Both species are of striking appearance, and each is undescribed. The spiders of this genus are noted for their flattened abdomen, which latter are always more or less intricately marked. Conspicuous in the abdominal markings or ornamentation of the species are a varying number of cicatrose depressions or pits, and in the two forms now under review this feature is, as usual, most marked. For one of these new forms I propose the name *Dolophones intricata*, in allusion to its intricate ornamentation, and for the other, which displays a remarkable but superficial resemblance to certain *Thomisidae*, I propose the name *D. thomisoides*.

DOLOPHONES INTRICATA, n. sp.

Pl. lxvii., figs. 9 and 10.

♀. Cephalothorax, 3·4 mm. long, 3·6 mm. broad; abdomen, 5·1 mm. long, 8·1 mm. broad (fig. 9).

Cephalothorax broadly ovate, much broader than long, dark brown generally, pilose, posterior extremity yellowish. *Pars cephalica* arched, truncated, recurved in front, broad, segmental groove distinct, a few short, fine hoary hairs spread over surface; *ocular area* broader than long; *clypeus* broad, not deep. *Pars thoracica* broad, strongly arched, radial grooves indistinct, a few hoary hairs spread over surface; *marginal band* broad, pilose, yellowish. *Eyes* normal. *Legs* moderately long, strong, tapering, dark brown with yellowish markings, pilose, armed with numerous long, strong spines. Relative lengths, 4, 1, 2, 3. *Palpi* short, strong, tapering, similar in colour, clothing, and armature to legs. *Falces* short, strong, arched, hairy, yellow at base and for about one-half their length thence, dark brown. *Maxillae* normal, outer angles and base yellowish, inner angles and apices pallid. *Labium* normal; apex pallid, the remainder yellow. *Sternum* oval, yellow, slightly arched. *Abdomen* overhanging base of cephalothorax, transversely oval, pilose, upper-surface convex, anterior angle truncated, wavy in outline, posterior extremity obtuse; general colour dark brown, with yellowish markings and cicatrose depressions; scheme of ornamentation intricate; inferior surface concave, grey, corrugated, corrugations lateral. *Epigynum* broad, with deep lateral pits, between which there is a long, convex, spatulate process (fig. 10).

Hab.—Oodnadatta to Todmorden (no date), and Carmeena, Everard Range, August 14, 1914.

DOLOPHONES THOMISOIDES, n. sp.

Pl. lxviii., fig. 11.

The description which I give hereunder is drawn from the oldest and largest of the three examples collected, and which is apparently almost adult. Personally I avoid describing immature forms as a rule, but there are times when one may with propriety depart from a set custom, and the present instance is, to my mind, a case in which such a departure is justified. The laterigrade grouping of the legs and the general appearance of the *caput* and *falces* are the main points that suggest a *Thomisid* appearance.

♀. Cephalathorax, 1·6 mm. long, 2 mm. broad; abdomen, 2·3 mm. long, 5·2 mm. broad.

Cephalothorax broadly ovate, broader than long. *Pars cephalica* pilose, arched, sides declivous, truncated in front, hoary with yellowish markings; *ocular area* broader than long; *clypeus* narrow, not deep. *Pars thoracica* broad, arched, pilose, yellow, with median and lateral white spots; radial grooves faintly discernable; *marginal band* narrow, white (fig. 11). *Eyes* normal. *Legs* moderately long, robust, pilose, white with yellow annulations, armed with numerous moderately long and moderately strong spines; underside of legs pale yellow. Relative lengths, 4, 1, 2, 3. *Palpi* short, robust, similar in colour, clothing, and armature to legs. *Falces* short, pilose, white, arched. *Maxillae* and *labium* normal, white. *Sternum* broadly oval, white, arched. *Abdomen* broadly ovate, boldly overhanging base of cephalothorax, wavy in outline, anterior angle truncated, upper-surface convex, pilose, yellowish-grey, ornamented with white markings and black spots, margin lighter in colour than the median area; inferior surface concave, light grey, corrugated, corrugations marked with dark-brown spots. On the younger forms the abdominal markings show some variation, but naturally such are not constant.

Hab.—Moorilyanna Native Well. The three examples of *D. thomisoides* were included among some specimens of *Thomisidae*, and the dates on the collector's label in the tube reads "July 28, 29, 30, 1914."

Family THOMISIDAE.

Several specimens, and these representing three genera, were collected by Captain White—namely, *Tmaris*, *Diaea*, and *Stephanopsis*—and it is curious to note that the majority of these are immature.

Of the genus *Tmaris* there are two species, one of which (consisting of only one specimen) is not only immature, but too damaged for specific determination; nevertheless, I am confident it is distinct from the one for which I propose the name *T. punctatus*. As no species of its genus has, up to the present moment, been described or recorded from Central Australia, it is quite probable it is also an undescribed form, but before naming it I await further and more perfect examples. *T. punctatus* is a male, and not quite fully developed. Likewise, of the genus *Diaea* there are again only two species, one of which is probably *D. punctata*, L. Koch, and the other, which is certainly new, I propose to name *D. pulleinei*, in honour of my esteemed friend, Dr. Pulleine, of Adelaide. The two half-grown examples of *Stephanopsis* appear to be undoubtedly referrable to O. P. Cambridge's *S. altifrons*.

TMARUS PUNCTATUS, n. sp.

Pl lxviii., figs. 12 and 13.

♂. Cephalothorax, 1·4 mm. long, 1 mm broad; abdomen, 2·5 mm. long, 1·4 mm. broad.

Cephalothorax obovate, grey. *Pars cephalica* strongly arched, not higher than thoracic segment, front and sides declivous, grey with a few black spots, and having a few long bristly hairs. *Ocular area* broader than long; *clypeus* deep, fringed with hairs. *Pars thoracica* strongly arched, sides rounded and declivous, posterior angle declivous and indented; upper-surface grey, with yellowish and white markings, and furnished with a few long bristly hairs; sides grey, with yellowish markings; posterior angle yellowish; *marginal band* broad, grey. *Eyes* distributed normally; each eye seated upon a slightly elevated tubercular eminence; front lateral eyes largest, and rear lateral eyes much the smallest. *Legs* moderately long and moderately strong, tapering, pilose, spined, upper-surfaces yellowish-grey, lower-surface light-grey, annulated; first and second pairs equal in length, third pair short, fourth pair missing. *Palpi* similar in colour, clothing, and armature to legs; short. *Falces* moderately long, arched, tapering, grey, pilose. *Maxillae* and *labium* grey; normal. *Sternum* grey, arched, pilose, cordate, with lateral extensions, the points of which terminate between the coxae; posterior extremity acuminate and terminating between fourth pair of coxae. *Abdomen* elongate, obovate, arched, overhanging base of cephalothorax; superior surface grey, with large and small black spots and lateral black markings near posterior extremity; at anterior extremity there are two submedian protuberances, while the posterior extremity is strongly humped (figs. 12 and 13); sides grey, striate-punctate; inferior surface light grey, relieved by a median and elongate patch of yellow-grey with black lateral spots; this patch extends from the *rima epigasteris* to near spinners; in front of *rima epigasteris* there is a large dark-brown patch, broader than long and uneven in outline.

Hab.—Moorilyanna Native Well, "July 28, 29, and 30, 1914." Immature.

DIAEA (?) PUNCTATA, L. Koch (immature).

Die Arach. des Aust., ii., 1876, p. 819, pl. lxx., figs. 6 and 6*a*.

Hab.—Between Todmorden and Wantapella Swamp, July, 1914.

DIAEA PULLEINEI, n. sp.

Pl. lxviii., figs. 14 and 15.

♂. Cephalothorax, 1 mm. long, 1 mm. broad; abdomen, 1·3 mm. long, 1 mm. broad.

Cephalothorax arched, broad, furnished with long bristles. *Pars cephalica* yellow, truncated in front, not higher than thoracic segment; *ocular area* much broader than long; *clypeus* deep. *Pars thoracica* yellow, with broad reddish-brown lateral bars extending from ocular region to posterior angle; sides rounded; *marginal band* narrow. *Eyes* normally distributed, black; each poised at the summit of a hoary tubercle. *Legs* rather long, strong, yellow, with reddish-brown annulations, hairy, spined. Relative lengths, 1, 2, 4, 3. *Palpi* short, yellow, similar in clothing and armature to legs, genital bulb rather large, no apophesis present (fig. 14). *Falces* short, yellow, hairy, not strong, arched, coniform. *Maxillae* and *labium* normal, hairy, yellow. *Sternum* concolorous with foregoing, shield-shaped, surface rather flat, sides arched, moderately hairy. *Abdomen* ovate, hairy, arched, overhanging base of cephalothorax, yellow; upper-surface ornamented with white and brown spots; at the middle there is a broad, broken, transverse brown bar; just below the latter, and extending towards the spinnerets, there are two brown bars, which are wavy in outline, retreating and converging inwards, but the apices do not meet (fig. 15); ventral surface yellow, with reddish-brown median and lateral bars; the latter are linked together by a procurved transverse bar immediately in front of the spinnerets.

Hab.—Moorilyanna Native Well, "July 28, 29, and 30, 1914."

STEPHANOPSIS ALTIFRONS, O. P. Cambr.

Ann. Mag. Nat. Hist., iii., 4, 1869, p. 61, pl. v., figs. 33 to 39; L. Koch: Die Arach. des Austr., i., 1874, p. 495, pl. xxxviii., fig 1.

Hab.—Moorilyanna Native Well, "July 28, 29, and 30, 1914." Immature.

Family CLUBIONIDAE.

ISOPEDA CONSPERSULA (?) (♂), Strand.

Zool. Jahb., 1913, p. 610.

Hab.—Everard Range, "up to August 14, 1914." Only one specimen, and that an immature form of what I take to be the above species.

ISOPEDA LEISHMANNI, Hogg.

Proc. Zool. Soc., Lond., 1902, p. 437, fig. 90.

Hab.—Flat Rock Hole and Wantapella Swamp, Everard Range. Several specimens of this species were obtained, from which it is apparent that *I. leishmanni* is a somewhat variable form, both in size and general appearance.

CLUBIONA ROBUSTA, L. Koch.

Die Arach. des Aust., i., 1873, p. 417, pl. xxxiii., figs. 2, 2*a*, 2*b*, 3, 3*a*, 3*b*.

Hab.—Moorilyanna Native Well, end of July, 1913, male; Flat Rock Hole, Everard Range, July 30, 1914, male and female.

CHIRACANTHIUM (?) PENNULIFERUM (♂), Simon.

Die Fauna Sud-west Aust., ii., 1909, p. 162.

Hab.—Flat Rock Hole, Everard Range, July 30, 1914. A single specimen, an immature male, and in all probability referrable to Simon's species.

MITURGA LINEATA, Thor.

Oef. Kongl. Vet. Akad. Förh., 4, 1870, p. 376; L. Koch: Die Arach. des Aust., i., 1872, p. 351, pl. xxvii., figs. 6, 6*a*, 7, 7*a*-7*e*.

Hab.—Everard Range to Wantapella Swamp. Two specimens.

Family PISAURIDAE.

DOLOMEDES FACETUS, L. Koch.

Die Arach. des Aust., ii., 1876, p. 869, pl. lxxiv., figs. 5, 5*a*, 5*b*.

Hab.—Everard Range, "Up to August 14, 1914." Two specimens of this widely distributed species were obtained. *D. facetus* occurs in New Zealand and on the Island of Upolu.

Family LYCOSIDAE.

LYCOSA LEONHARDII, Strand.

Zool. Jahrb., 1913, p. 618.

Hab.—Everard Range to Wantapella Swamp. One female specimen; immature.

LYCOSA (?) TOPAZIOPSIS, Hogg.

Rep. Horn Expl. Exped., ii., Zool., 1906, p. 347, pl. xxiv., fig. 14.

Hab.—Between Musgrave Ranges and Everard Range. One specimen, immature and in bad condition.

LYCOSA (?) IMMANSUETA, Simon.

Die Fauna Sud-west Aust., ii., 1909, p. 183, fig. 1.

Hab.—Todmorden, ninety miles west of Oodnadatta, July, 1914. Two female specimens, one adult and damaged and one about half-grown. Although I have inserted a (?) in connection with these specimens, I think, notwithstanding that the adult is damaged, there can be little doubt as to the correctness of the determination; indeed, the *epigynum* would seem to bear out this view, although it is unfortunately somewhat distorted.

LYCOSA NIGROPUNCTATA, n. sp.

Pl. lxviii., figs. 16 and 17.

♀. Cephalothorax, 6 mm. long, 5 mm. broad; abdomen, 7·2 mm. long, 5 mm. broad.

Cephalothorax obovate, pilose. *Pars cephalica* arched, raised, orange-yellow, with dark-brown spots, truncated in front, thoracic segment well defined, sides declivous; *ocular area* longer than broad, clothed with long black hairs, which impart a dark appearance; eyes fringed with grey; *clypeus* deep, pilose, and furnished with three or four black bristles below front row of eyes. *Pars thoracica* broad, arched, median and lateral grooves well defined, dark; *marginal band* broad, yellow, spotted with black, fringed with fine hairs. *Eyes* in three rows of 4, 2, 2; anterior row very slightly procurved, small, lateral eyes smallest; the pair constituting the second row are not only large, but are also slightly larger than their near neighbours; eyes of second row separated from each other by a space equal to fully once their individual diameter, and those of the third row by a space equal to fully twice their individual diameter. *Legs* long, strong, yellow, hairy, spined, tarsi scopulated, superior claws long. Relative lengths, 4, 1, 2, 3. *Palpi* long, similar in colour, clothing, and armature to legs. *Falces* long, strong, tapering, well arched, hairy, yellow, inner margins fringed with coarse black hairs; *fangs* long, dark-brown. *Maxillae* yellow, long, arched, clothed with long coarse hairs or bristles, rounded at heel, apices broad, inclining inwards, inner angles obliquely truncated. *Labium* yellow, but darker than maxillae, darkest at base, short, broad, well arched, apex truncated, slightly indented at centre, fringed with dark hairs. *Sternum* broad, truncated in front, well arched, dark brown, margin yellow, densely clothed with dark hairs. *Abdomen* ovate, hairy, overhanging base of cephalothorax, upper-surface yellow and having several slightly darker yellow, broad, transverse, curved bars; these latter are well curved, and do not suggest eschelons; distributed over the surface there are a number of large and small black spots;

sides yellow, mottled with numerous pale-yellowish spots; inferior surface concolorous with sides, but having in addition a broad, longitudinal, median smoky bar, which latter terminates some little distance from the spinnerets (fig. 16). *Epigynum* simple, composed of two widely separated, obliquely directed oval pits (fig. 17). *Spinnerets* short, yellow, and clothed with yellow and dark hair.

Hab.—Flat Rock Hole, Musgrave Ranges, July 24, 1914. Two specimens, one mature and the other half-grown. In reference to the larger specimen the collector's note reads, "Out of hole with trap-door." The trap-door, a specimen of which was enclosed, is of the wafer type, and is made up of layers of silk, in the meshes of which fine gravel has been incorporated; it has a circumference of 42 mm. A third specimen, also from Flat Rock Hole, but without date, is considerably smaller than the one described and figured as the type; further, the black abdominal spots are very small and very few in number, and the transverse bars are absent, but the *epigynum* is fully developed and is exactly like the form described and figured herewith. Apparently the species is variable.

Family OXYOPIDAE.

Amongst the material collected by Captain White there are a number of small spiders which, on account of the large size of the second pair of eyes, suggest affinity to Simon's genus *Hostus*; in fact, when I first examined them I thought I should have to record the occurrence of that Madagascan genus in Australia. A closer examination, however, when engaged upon the task of preparing the present paper, brought to light characters excluding this species from that and every other genus included in the family *Oxyopidae*. The family is well distributed over the globe, but it is a small one, consisting of (including the new genus described below) only eleven genera. The majority of the species—and they are not many—are remarkable for their beauty and gracefulness, the compactness of the grouping of the eyes, length of maxillae and labium, and also for their long legs. In the species now under review the eyes, as already pointed out, bear a superficial resemblance to those of the Madagascan genus, but contrary to that or any other *Oxyopid*, the labium, instead of being truncated, is coniform, and therefore has the apex obtusely pointed, while the legs are only moderately long. It is for the reason of its somewhat superficial resemblance to Simon's genus, quoted above, that I propose for the reception of this interesting *Araneiad* the generic name *Pseudohostus*, the description of which I append herewith.

PSEUDOHOSTUS, n. g.

Pl lxviii., figs. 18 and 19.

Cephalothorax oval, massive, segmental groove separating *pars cephalica* from *pars thoracica* faintly defined. *Pars cephalica* strongly arched. obtusely truncated; *ocular area* broader than long; *clypeus* deep. *Pars thoracica* strongly arched, broad; median and radial grooves faintly defined; sides and posterior area steep. *Eyes*, eight, distributed over three rows of 2, 2, 4; anterior eyes minute, second pair largest, and also somewhat larger than those forming the rear row; posterior eyes of equal size, and forming a strongly procurved row (fig. 18). *Legs* not strong, only moderately long, armed with long, fine spines, not scopulated; claws, three; superior claws long, well curved, weak, furnished with numerous long, fine teeth. Relative lengths, 1, 2=4, 3. *Palpi* short. *Falces* rather long, coniform; *fang* short, weak *Maxillae* long, apices converging inwards, truncated, acuminate, heel rounded (fig 19) *Labium* long, coniform (fig. 19) *Sternum* elongate, truncated in front, acuminate at rear, and terminating between fourth pair of coxae. *Abdomen* ovate. *Spinnerets* compactly grouped, uniarticulate, cylindro-coniform.

PSEUDOHOSTUS SQUAMOSUS, n sp

Pl lxviii., figs. 20 and 21.

♀. Cephalothorax, 1·7 mm. long, 1·4 mm broad; abdomen, 2·5 mm. long, 1·7 mm. broad.

Cephalothorax oval, smooth, shining, furnished with a few short hairs, and, when not rubbed, a profusion of white, elliptical scales; yellow, with dark markings, the latter variable. *Pars cephalica* strongly arched, sides declivous, obtuse in front, junction with thoracic segment faintly defined; *ocular area* broader than long, hairy; *clypeus* narrow, but very deep. *Pars thoracica* broad, strongly arched, sides and posterior area very steep, radial and lateral grooves faintly defined; *marginal band* broad, pale yellow. *Eyes* black; in three rows of 2, 2, 4; anterior pair widely removed, minute; second pair largest of the series, and separated from each other by a space equal to fully twice their individual diameter; the four constituting the third row form a strongly procurved line, and widely removed from each other; each lateral eye of this row is separated from its inner neighbour by three times its individual diameter, and the two median eyes from each other by a space equal to about two and a half diameters (fig. 18) *Legs* moderately long, yellow, tapering, hairy, armed with long, fine spines, tarsal joints not scopulated. Relative lengths, 1, 2=4, 3. Superior claws long, well curved, and furnished with a large number of long, fine, parallel teeth. *Palpi* not long, similar in colour, clothing, and armature to legs. *Falces* yellow, moderately long, coniform, hairy; *fang* short and weak. *Maxillae* long, yellow, arched, moderately hairy, apices truncated, inner angles acuminate, inclining inwards and fringed with dark hairs; heel rounded (fig. 19). *Labium* concolorous, long, coniform moderately hairy (fig. 19). *Sternum* concolorous also, elongate, truncated in front, arched, moderately hairy, apex obtusely acuminate and terminating between fourth pair of coxae. *Abdomen* ovate, slightly overhanging base of cephalothorax, strongly arched, pubescent, and, when not rubbed, clothed with numerous white elliptical scales; the general colour of the superior surface is yellow, with dark markings, but the latter vary in size, form, and distribution in different individuals; inferior surface yellow, with more or less intense dark markings, the surface pilose, and carrying scales similar to those already described (fig. 20). *Epigynum*: This organ consists of two circular depressions (fig. 21), but the latter are so densely clothed with hairs and scales that they are exceedingly difficult to locate. *Spinnerets* yellow, hairy, compactly grouped, uniarticulate, cylindro-conical; in front of inferior mammilae there is a small, obtuse *colulus*.

Hab.—Mcorilyanna Native Well, July 28, 29, 30: Flat Rock Hole, Musgrave Ranges, July 30, 1914. The series collected embraces individuals of different ages and different stages of growth, and these display considerable colour variation.

Family SALTICIDAE.

Of this family five species were collected, and the majority of these were immature or more or less damaged. Two of the five species are apparently new, and so are herewith described. None call for special comment.

COSMOPHASIS (?) BITAENIATUS, Keys.

Sobara bitaeniata, Keys, in L. Koch: Die Arach. des Aust., ii., 1882, p. 1365, pl. cxv., figs. 8, 8*a* to 8*d*, 9.

Hab.—Flat Rock Hole, Musgrave Ranges, July, 1914. An immature male of what may in all probability prove to be the above species.

PYSTIRA ORBICULATA, L. Koch.

Hasarius orbiculatus, L. Koch: Die Arach. des Aust., ii., 1881, p. 1285, pl. cx., figs. 1, 1*a*, 1*b*, 2, 2*a* to 2*c*.

Hab.—Flat Rock Hole, Musgrave Ranges, July, 1914. Two specimens, both immature.

HASARIUS, sp.

Hab.—Two specimens from Flat Rock Hole, July, 1914, and one from Moorilyanna Native Well, July 28-30, 1914. Each of these belong, apparently, to the same species, but are too immature for description.

SERVAEA OBSCURA, n. sp.

Pl. lxviii., fig. 22.

♀. Cephalothorax, 2·2 mm. long, 1·8 mm. broad; abdomen, 3·6 mm. long, 2·2 mm. broad.

Cephalothorax ovate, nearly parallel-sided, chocolate-brown, shining. *Pars cephalica* rather flat, not impressed, inclined forward, sides declivous; *ocular area* broader than long, each eye fringed with tawny and hoary hairs; *clypeus* not deep, fringed with rather long hairs. *Pars thoracica* furnished with a few white and tawny adpressed scales, and marked by a large but not well-defined depression, sides declivous, sloping sharply rearwards, and retreating laterally to posterior angle; *marginal band* broad, yellow. *Eyes* in three rows of 4, 2, 2. Front row recurved; median anterior pair much the largest of the entire series, intermediate pair (second row) minute, posterior eyes somewhat smaller than front lateral eyes. *Legs* short, robust, hairy, armed with long, very fine spines; coxae and base of each femur pale yellow; from thence upper-surface and sides of each leg yellow, with dark-brown annulations; inferior surface of each yellow. Relative lengths, 1, 4, 2, 3. *Palpi* short, robust, similar in colour and armature to legs. *Falces* not long, robust, arched, concolorous with cephalothorax, hairy, almost geniculate. *Maxillae* and *labium* yellowish, normal. *Sternum* elongate, brown, arched, clothed with long hoary hairs. *Abdomen* ovate, slightly overhanging base of cephalothorax, arched, superior surface and sides chocolate-brown, slightly pubescent, and having a number of white and tawny scales; these latter, like those on cephalothorax, lie flat upon the surface, are elliptical, and each one has a distinctly raised ridge or "mid-rib" running down the centre, and is finely and laterally striated; inferior surface yellow-brown and furnished with hoary scales. [All three specimens have apparently been rubbed, and so have lost a large number of their scales.] *Epigynum* small, difficult to locate owing to preponderance of scales; it consists of two circular depressed discs, the edges of each of which are raised so as to form a ridge (fig. 22).

Hab.—Flat Rock Hole, Musgrave Ranges, July, 1914.

TRITE ORNATA, n. sp.

Pl. lxviii., figs. 23 and 24.

♀. Cephalothorax, 2·2 mm. long, 1·5 mm. broad; abdomen, 2·3 mm. long, 1·5 mm. broad (fig. 23).

Cephalothorax ovate, elongate. *Pars cephalica* golden-yellow, flat, slightly inclined, sides steep, pubescent, with fine hoary hairs, interspersed by stiff black hair; *ocular area* longer than broad, eyes ringed with black, *clypeus* not deep. *Pars thoracica* arched, bright yellow, pubescent, clothed with hoary hairs interspersed with stiff black hairs, retreating laterally and sloping posteriorly; *marginal band* yellow. *Eyes* in three rows of 4, 2, 2; front row recurved, median pair of this row larger than their lateral neighbours; those of the second row minute, and seated near to their anterior lateral neighbours; rear pair of eyes slightly larger than the anterior laterals. *Legs* yellow; first pair exceedingly robust; hairy, and armed with spines, those on the first pair being much the strongest. Relative lengths, 1, 4, 2, 3. In the type, which is mature, only one leg, and that of the first pair, is present, all the others having been broken off and lost; but in an immature form the ambulatory limbs are intact. *Palpi* short, similar in colour and armature to legs. *Falces* yellow, arched, coniform, hairy. *Maxillae* and *labium* yellow, normal. *Sternum* elongate, arched, obtusely acuminate and attenuated in front, moderately hairy. *Abdomen* ovate, arched, slightly overhanging base of cephalothorax, hairy; superior surface and sides yellow, with dark median and lateral markings; inferior surface has a broad, median yellow band, transversely striated, and relieved by pale-yellow spots between striations; this band extends from the *rima epigasteris* to the spinnerets; laterally the abdomen (ventral surface) is white and reticulated by dark yellow markings. *Epigynum* transverse, broader than long, situated on a dark-yellow field; it is bisected, and each half presents an appearance suggestive of a square, at the outer extremity of the lower arm of each of which there is a large oval depression (fig. 24).

♂. An immature example of this sex is also included in the collection, and bears the same locality and date as that of the two females. It agrees in colour and clothing to the form described above, and is also very similar in abdominal ornamentation. As the palpal organs are not uncovered further description is unnecessary.

Hab.—Flat Rock Hole, Musgrave Ranges, July 23, 1914. One mature female (damaged) and one immature female (intact), together with an immature male example, all from same locality and collected on the same date.

DESCRIPTION OF PLATES.

PLATE LXVII.

Fig. 1. *Aganippe whitei;* eyes.
,, 2. ,, ,, scheme of dentition.
,, 3. *Cryptoerithus occultus;* cephalothorax.
,, 4. ,, ,, abdomen in profile.
,, 5. ,, ,, epigynum.
,, 6. *Echemus(?) griseus;* male, palpus from above.
,, 7. *Argyrodes binotata;* male, palpus from above.
,, 8. ,, ,, abdomen.
,, 9. *Dolophones intricata.*
,, 10. ,, ,, epigynum.

PLATE LXVIII.

Fig. 11. *Dolophones thomisoides.*
,, 12. *Tmarus punctatus.*
,, 13. ,, ,, abdomen in profile.
,, 14. *Diaea pulleinei;* male, palpus from beneath.
,, 15. ,, ,,
,, 16. *Lycosa nigropunctata.*
,, 17. ,, ,, epigynum.
,, 18. *Pseudohostus squamosus;* eyes.
,, 19. ,, ,, maxillae and labium.
,, 20. ,, ,, in profile.
,, 21 ,, ,, epigynum.
,, 22. *Servaea obscura;* epigynum.
,, 23. *Trite ornata;* in profile.
,, 24. ,, ,, epigynum.

(*i*) INSECTA.

By ARTHUR M. LEA, F.E.S., Museum Entomologist.

[*Contribution from the South Australian Museum.*]

The collection of invertebrates brought back by Captain White consisted altogether of 1,653 specimens; of the true insects, the ants have been worked out by Professor Wheeler (of Harvard University), the moths by Dr. Turner (of Brisbane), and the beetles by myself; the bugs have been sent to Mr. Distant (of the British Museum), but the manuscript relating to same has not yet been received. Of the other insects, the *Orthoptera* are represented by 27 species, the *Neuroptera* by 6 species, the *Diptera* by 4 species, and the *Hymenoptera* (other than ants) by 3 species.

Probably, so far as the insects are concerned, a worse time could not have been selected for collecting; nevertheless, some very interesting species were obtained, and the large proportion of new forms amongst the ants indicates how little is known of these interesting insects from the dryer parts of Australia. Of the beetles, the most interesting species are a representative of a new genus of weevils and a large ground-beetle, *Hyperion schroetteri;* the latter hitherto has been supposed to be confined to the heavily-timbered districts of Eastern Australia, most of the specimens known having been obtained from the pipes of iron-bark trees and other large species of *Eucalyptus*, so that its occurrence in the vicinity of Oodnadatta is noteworthy. One very satisfactory feature of the collection is the perfect condition of most of the specimens, other than those of which only fragments were seen.

Coleoptera.

GARABIDAE.—*Calosoma schayeri*, Er. Wantapella, Everard Range. *C. walkeri*, Waterh. Everard Range. *Chlaenioidius herbaceus*, Chaud. Todmorden. *Chlaenius australis*, Dej. Todmorden. *Euryscaphus waterhousei*, Macl. (fragments). Everard Range. *Hyperion schroetteri*, Schreib. Oodnadatta. *Philophlaeus planus*, Chaud. Oodnadatta. *Philoscaphus tuberculatus*, Macl. (fragments). Everard Range. *Phlaeocarabus crudelis*, Newm. Todmorden to Wantapella. *Platynus marginicollis*, Macl. Everard Range. *Scaraphites rotundipennis*, Dej. Oodnadatta.

DYTISCIDAE.—*Antiporus gilberti*, Clark. Moorilyanna *Eretes australis*, Er. Flat Rock Hole. *Necterosoma penicillatum*, Clark. Everard Range.

HYDROPHILIDAE.—*Philhydrus andersoni*, Blackb. Flat Rock Hole, Todmorden.

HISTERIDAE.—*Saprinus cyanellus*, Mars. Everard Range.

NITIDULIDAE.—*Haptoncura lindensis*, Blackb. Wantapella. *Thalycrodes australe*, Germ. Todmorden.

COLYDIIDAE.—*Ditoma hilaris*, Blackb. Everard Range.

SCARABAEIDAE.—*Anoplognathus macleayi*, Blackb. (fragments). Everard Range. *Haplonycha testaceipennis*, Macl. Oodnadatta. *Heteronyx alienus*, Blackb. Flat Rock Hole. *Semanopterus rectangulus*, Blackb. Oodnadatta to Todmorden. *Trox litigiosus*, Har. Musgrave and Everard Ranges. *T. quadridens*, Blackb. Musgrave and Everard Ranges, Moorilyanna.

BUPRESTIDAE.—*Chalcophora angulipennis*, Blackb. (fragments). Everard Range.

ELATERIDAE.—*Monocrepidius nitidulus*, Cand. Todmorden.

BOSTRYCHIDAE.—*Bostrychopsis jesuita*, Fab. Flat Rock Hole.

TENEBRIONIDAE.—*Caedius sphaeroides*, Hope. Moorilyanna. *Chalcopterus tinctus*, Blackb. Moorilyanna to Everard Range. *Hypaulax orcus*, Pasc. Indulkana, Wantapella, Musgrave Ranges. *Pterohelaeus fraternus*, Blackb. Todmorden, Everard Range. *Saragus pascoei*, Macl. Everard Range. *S. strigiventris*, n. sp. *Seirotrana parallela*, Germ. Oodnadatta. *Tribolium ferrugineum*, Fab. Wantapella.

PEDILIDAE.—*Egestria sulcicollis*, Blackb. Moorilyanna.

CURCULIONIDAE. — *Acantholophus simulator*, Ferg. Oodnadatta. *Acherres granulatus*, Ferg. Flat Rock Hole. *Auletes tibialis*, n. sp. *Cisowhitea longicollis*, n. sp. *Epamaebus ziczac*, Lea. Moorilyanna. *Glaucopela fasciata*, n. sp. *Leptops contrarius*, Blackb. Musgrave to Everard Ranges. *Molochtus tibialis*, Sloane. Everard and Musgrave Ranges, Moorilyanna, Wantapella. *Myrmacicelus pilosicornis*, n. sp. *Polyphrades satelles*, Blackb. Musgrave to Everard Ranges. *Sclerorhinus elderi*, Sloane. Musgrave and Everard Ranges, Flat Rock Hole. *Xeda fasciata*, n. sp.

CERAMBYCIDAE.—*Phoracantha posticalis*, Blackb. Oodnadatta. *P. recurva*, Newm. Everard Range, Oodnadatta, *Sympetes collaris*, Don. Flat Rock Hole.

CHRYSOMELIDAE.—*Diandichus analis*, Chp. Everard Range. *Ditropidus whitei*, n. sp. *Paropsis beata*, Newm. Oodnadatta. *P. lateralis*, Blackb. Wantapella, Everard Range.

COCCINELLIDAE.—*Scymnus meyricki*, Black. Moorilyanna.

SARAGUS STRIGIVENTRIS, n. sp.

Black; margins of head, prothorax, and elytra obscurely diluted with red; antennae, palpi, and tarsi castaneous.

Head with dense but rather small punctures between eyes, much smaller elsewhere. Antennae passing base of prothorax, third joint almost as long as fourth and fifth combined. *Prothorax* at base about four times as wide as median length, rather strongly convex, front angles rounded and produced to widest part of head; margins rather wide in front and gently upturned, increasing in width to base, and there turned down; with minute scattered punctures, slightly more conspicuous on sides than elsewhere. *Scutellum* almost twice as wide as long. *Elytra* as wide as long, rather strongly convex, outlines continuous with those of prothorax; with numerous rows (about twenty on each elytron) of distinct but rather small punctures, the interspaces with very minute ones; margins wide at the base and narrow posteriorly, feebly wrinkled and with very small punctures; epipleurae widely concave at base, and gently so at apex. *Metasternum* granulate at sides. *Abdomen* rather densely punctate and longitudinally strigose. Length, 10½-12 mm.

Hab.—Everard Range. Type, I. 5181.

The specimen taken by Captain White is subopaque and without legs or antennae, but it was obtained in that condition.

A specimen from Eyre Sand Patch (from Blackburn's collection, taken by W. Graham) is, however, in perfect condition, and is rather highly polished. In general appearance the species is like *pascoei* on a greatly reduced scale.

EGESTRIA SULCICOLLIS, Blackb.

There are two co-types of this species in the Museum, both labelled as from Ayers Rock (the type locality). The original description is misleading, as the prothorax was described as "*longitudinaliter subtiliter valde perspicue canaliculato*"; as a matter of fact the prothorax of the male co-type (the other is reversed) has been scratched down the middle, giving it, to a certain extent, a grooved appearance. The hind tibiae of the male are remarkable, and were not even mentioned; commencing at the base of each there is a conspicuous flange-like process (lightly concave on its upper-surface), that abruptly terminates at the basal third; where it ends inwardly there is a smaller semi-erect process, that can be easily overlooked from certain directions; but the two from many directions are extremely conspicuous; the female hind tibiae are not remarkable. Two males and one female were taken by Captain White at Moorilyanna.

XEDA FASCIATA, n. sp.

Black; antennae (club slightly infuscated) and legs (femora almost black) reddish. Moderately densely clothed with scales.

Head with rather dense, partially concealed punctures. Eyes subtriangular, rather closely approaching each other. Rostrum slightly shorter than prothorax; with rather coarse punctures in irregular grooves behind antennae, punctures much smaller in front of same. Scape inserted about one-third from apex of rostrum, about half as long as funicle and club combined; first joint of funicle as long as two following combined. *Prothorax* lightly transverse, sides almost evenly diminishing in width from base to apex, the former almost twice the width of the latter; with dense, partially concealed punctures. *Elytra* almost parallel-sided to near apex; with rows of subquadrate punctures in rather shallow striae, the punctures becoming smaller, but the striae deeper, on apical slope; interstices with rather dense more or less concealed punctures. *Under-surface* with dense normally concealed punctures. *Legs* moderately long; femora rather stout, edentate. Length, 3½ mm.

Hab.—Moorilyanna. Type (unique), I. 5186.

About the size of *notabilis*, and the derm similarly coloured, but the elytral setae much shorter and less conspicuous; on that species they are conspicuous from any direction, but on the present species they are visible only from the sides and scarcely elevated about the general clothing. On the type the clothing on the upper-surface is subdepressed, and consists of rather thin scales or stout setae, white and conspicuous in places, black or sooty-brown in others, the derm beneath the latter at first glance appearing to be glabrous; on the head the scales are mostly dark; on the prothorax a large portion of the disc and a fairly large spot on each side are clothed with dark scales, elsewhere the scales are white or whitish; on the elytra most of the clothing is dark, but there is a rather conspicuous white fascia across the summit of the apical slope, an interrupted one at the apex, and remnants of others across the middle and at the base; on the under-surface the scales are snowy, and closely applied to the derm, but on the second abdominal segment there is a conspicuous median yellowish spot; on the legs the scales and setae are white. The type is probably a male, and the conspicuous abdominal spot is probably confined to that sex.

GLAUCOPELA INTERIORIS, n. sp.

Reddish-castaneous; metasternum deeply infuscated. Rather densely clothed with depressed scales varying from white to dark-brown.

Head with dense, concealed punctures. Eyes separated less than width of rostrum at base. Rostrum about the length of prothorax, moderately curved; with minute punctures except at base, where they are coarse but concealed. Antennae inserted at about basal two-fifths of rostrum, scape scarcely half the length of funicle; basal joint of funicle about as long as the three following combined. *Prothorax* moderately transverse, base truncate, sides gently rounded from base to in front of middle, and then strongly decreasing in width to apex; punctures dense but almost entirely concealed. *Elytra* not much wider than prothorax, almost parallel-sided to near apex; with regular, narrow striae, containing deep punctures; interstices with dense, concealed punctures. *Under-surface* with dense, concealed punctures. *Legs* moderately long; front coxae lightly separated; femora rather stout, edentate. Length, 2⅖ mm.

Hab.—Flat Rock Hole. Type (unique), I 5185.

According to Blackburn's table this species (if not referred to a new genus) should be placed in *Glaucopela*, but its rostrum is longer in proportion than in any species previously referred to that genus; the front sides of the prothorax are obliquely cut off as on all the species of *Glaucopela*, and very different to those of *Cydmaea* and *Dicomada*, to which genera, at first glance, it appears to approach. The polished rostrum, clothed only about the extreme base, appears to indicate that the type is a female. The tip of the club is slightly infuscated. Nearly all species of the genus have variable clothing; on the type, evidently in perfect condition, the scales on the head are almost entirely white and fairly dense; the rostrum is glabrous except at the extreme base; on the prothorax each side is densely clothed with white scales, elsewhere dark chocolate-brown scales are dense, but mixed with a few pale ones; on the elytra the white scales are denser on the apical slope than elsewhere, on a dilated space on the suture before same they are dark, on other parts of the elytra the scales have a somewhat mottled or feebly lineate appearance; on the under-surface and legs the scales are silvery, but with a rosy flush in places, and slightly greenish on and about the coxae.

MYRMACICELUS PILOSICORNIS, n. sp.

Deep black.

Head with minute punctures. Eyes large and close together. Rostrum lightly curved, about as long as front femora; with dense and rather fine punctures, larger on sides at base than elsewhere. Antennae with apical two-thirds clothed with conspicuous and rather long hairs; scape short; first joint of funicle distinct but transverse, the others very short and closely applied; club longer than funicle and scape combined. *Prothorax* much longer than wide, sides rounded on apical two-thirds; disc with small but sharply defined punctures, becoming larger on sides; base depressed, narrow, subopaque, and with crowded punctures. *Elytra* subopaque and finely shagreened; with very feeble remnants of striation. *Legs* rather long and stout; claw joint projecting well beyond lobes of third. Length, 3½-4 mm.

Hab.—Flat Rock Hole. Type, I. 5183.

The subopaque elytra and base of prothorax, with the very different clothing of antennae, readily distinguishes from all previously described species of the genus.

AULETES TIBIALIS, n. sp.

Deep black, but in places with a vague brassy gloss; knees and tibiae more or less reddish. Upper-surface with moderately long and almost uniform ashen pubescence, becoming shorter on under-surface.

Head evenly convex; with moderately dense and small, but sharply defined punctures. Eyes very prominent. Rostrum rather long, slightly dilated to apex; with fairly coarse punctures and an impressed line at base, elsewhere with much smaller punctures. Antennae long and thin, inserted almost at extreme base of rostrum. *Prothorax* almost as long as wide, sides gently increasing in width from apex to near base, and then suddenly narrowed; with dense and fairly coarse punctures. *Elytra* not very wide, each with a narrow sutural stria; with dense punctures, small and rugose posteriorly; some large ones on basal third. Length, 2½ mm.

Hab.—Flat Rock Hole. Type (unique), I. 5184.

A deep-black species, larger and more regularly clothed than *uniformis*, with narrower elytra and shorter and almost straight rostrum; *imitator* is a smaller species, with darker tibiae, shorter rostrum, and sparser clothing. On the basal third of each elytron there are some fairly large punctures, forming short irregular rows (about four) on the sutural half; immediately behind the shoulders there are some similar punctures, but with the linear arrangement less conspicuous.

CISOWHITEA, n. g.

Head small, concealed from above. Eyes lateral, coarsely faceted. Rostrum long, rather thin, almost straight; scrobes invisible from above. Antennae inserted almost in exact middle of sides of rostrum; scape about half as long as funicle and club combined, first joint of funicle as long as two following combined, the others short; club rather short. *Prothorax* subconical, front rather strongly produced, ocular lobes feeble. *Scutellum* apparently absent. *Elytra* distinctly wider than prothorax, elongate subcordate, each separately rounded at base. *Pectoral canal* deep and moderately wide, leaving four front coxae exposed internally, and ending as a slight notch in metasternum. Metasternum moderately long; episterna narrow. Two basal segments of *abdomen* elongate. *Legs* not very long; femora stout, edentate, not grooved; tibiae bisinuate on lower-surface, apex with a short stout spur; tarsi rather short, third joint moderately bilobed but not wider than the preceding ones, claw joint moderately long. Densely squamose.

A very curious genus of the *Cryptorhynchides;* the type in general appearance from above appears to belong to the vicinity of *Achopera*, but the pectoral canal is very different to that of any of the allies of *Chaetectetorus*, except *Deretiosus*, whose legs and prothorax are very different; for the present, however, it may be referred to the vicinity of that genus. The structure of the under-surface is distinctly suggestive of affinity with *Microberosiris*, but it differs in its head concealed from above, prothorax longer than wide, with the sides scarcely rounded, but obliquely decreasing in width from base to apex; the tarsi are very different, the third joint being no wider than the preceding ones (instead of much wider, as in that genus), and the claw joint is almost as long as the others combined, instead of much shorter. I have not made certain, but believe the type to be winged, and a male.

CISOWHITEA LONGICOLLIS, n. sp.

Black; antennae of a dingy-red, club and rostrum darker. Densely clothed.

Rostrum about as long as prothorax, very feebly diminishing in width from base to apex; apical half without distinct punctures. *Prothorax* distinctly longer than wide, apex about half the width of base. *Elytra* about one-third wider than prothorax, and about twice as long, sides evenly decreasing in width from near base. Length, 3 mm.

Hab.—Moorilyanna. Type (unique), I. 5187.

The clothing is so dense that, except for the apical half of rostrum (which is entirely glabrous), the antennae and claws (which are sparsely clothed), the derm is everywhere concealed; it consists of soft scales, closely applied to the derm, and on the upper-surface varying in colour from almost white, through fawn, to sooty-black; the whitish scales are irregularly distributed, but form fairly distinct patches on each side of base of prothorax (continued on to shoulders), and a slight fascia at summit of apical slope; in addition, there are stout scales rising above the surface, fairly dense on prothorax, and forming a regular series on each interstice of elytra, but similar in colour to the other scales amongst which they are set. On the under-surface (including the whole of the pectoral canal) the scales are white; on the legs they are mostly white, but the femora are feebly ringed, and the upper parts have a speckled appearance; on the head the scales are mostly dark, irregularly changing to white on the rostrum. The type has not been abraded, so that the description of the sculpture will need amplification when a specimen is available for that purpose; punctures appear to be faintly indicated on the head and prothorax, and they are probably dense there and on the elytra; the elytral striae appear as very narrow lines, but on abrasion would probably appear much wider, and to be supplied with large punctures. From some directions the base of the prothorax appears to be truncate, but from others feebly produced in the middle. Seen from the side the upper edge of the rostrum appears to be almost level from apex to base, and to suddenly slope downwards from level with the middle of the eye; but this appearance is certainly enhanced by the clothing.

DITROPIDUS WHITEI, n. sp.

Brassy; appendages more or less brassy-black, but three basal joints of antennae and tips of mandibles obscurely diluted with red. Clothed with fine whitish pubescence, moderately dense on head, sides of prothorax, pygidium, and under-surface, very short and rather indistinct, but almost evenly distributed on elytra and disc of prothorax, and dense on flanks of metasternum.

Head with rather dense but partially concealed punctures. Antennae slightly passing base of prothorax. *Prothorax* with dense punctures, except for a short, shining, median line, towards sides and base, with a tendency to become obliquely or longitudinally confluent. *Elytra* slightly narrower than widest part of prothorax: with oblique rows of distinct but not very large punctures, larger behind shoulders than elsewhere; interstices with rather dense, small punctures, having a tendency in places to become confluent. *Legs* short and stout. Length, 4 mm.

Hab.—Flat Rock Hole. Type, I. 5182.

In general appearance fairly close to *pubicollis*, but prothoracic punctures much more distinct, median line of the head less distinct, legs entirely black, and antennae almost so. The elytral pubescence, although extremely short, is fairly distinct from certain directions, although from others appearing like fine dust. The species occurs also at Leigh Creek (Blackburn's collection), Cue (H. W. Brown), and Fraser Range (1) (Elder Expedition). Some of the specimens have an irregular bluish or purplish gloss in places, but this may be due to grease; one has five basal joints of antennae reddish.

Lepidoptera.

Suborder HETEROCERA.

By A. JEFFERIS TURNER, M.D., F.E.S.

The following species of Lepidoptera were taken by Capt. S. A. White in Central Australia "from Oodnadatta to the Musgrave and Everard Ranges":—

Family NOCTUIDAE.

Neocleptria punctifera, Wlk., three examples.

Euxoa radians, Gn., five examples.

One species undetermined, represented by a solitary example in poor condition. It probably represents a new genus allied to *Calophasidia*, Hmps.

---

(1) A specimen from Fraser Range was identified by the late Rev. T. Blackburn as *cistellus*; but that species is entirely glabrous on the upper-surface (in the original description no clothing of any kind was mentioned), and differs in other respects.

Family LYMANTRIADAE.

Anthela rubicunda, Swin., one male example.

Family GEOMETRIDAE.

Taxeotis, sp. One female example.

Boarmia, sp. One male example, somewhat rubbed, which I am unable to identify.

HARPAGOCNEMA, n. gen. (ἁρπαγοκνημος, with hooked shins).

Frons with well-marked rounded prominence. Tongue well developed. Palpi moderately long (2), porrect; second joint thickened with scales beneath; terminal joint short, obtuse. Antennae of male shortly bipectinate, towards apex simple. Thorax with a sharp keel-shaped anterior crest, its apex bent forwards; beneath densely hairy. Abdomen smooth. Anterior tibiae very short with two stout horny apical hooks, the inner hook long, the outer very short. Posterior tibiae of male not dilated. Forewings narrow-elongate; in male without fovea; 10 and 11 long-stalked, not anastomosing. Hindwings much broader than forewings (over 2); cell long (⅔).

One of the *Chlenias* group, apparently near *Capusa*, but very distinct in the stalking of veins 10 and 11, hooked anterior tibiae, sharp anterior thoracic crest, and pectinations of male antennae.

HARPAGOCNEMA EREMOPLANA, n. sp.

(ἐρημοπλανος, wandering in the desert).

♂, ♀; 39-42 mm. Head, thorax, and palpi dark-grey, irrorated with whitish; centre of face brownish-ochreous. Antennae ochreous-fuscous; pectinations in male 2, apical ⅛ simple. Abdomen ochreous-whitish, irrorated with grey. Legs whitish, irrorated with dark-fuscous; anterior pair dark-fuscous. Forewings narrow-elongate, costa gently arched towards apex, apex subrectangular, termen rather obliquely rounded, finely dentate; dark-grey, with some whitish irroration and some blackish streaks on veins; a blackish streak on dorsum from near base to tornus; cilia grey. Hindwings with termen doubly sinuate; whitish, with grey streaks on veins; a grey discal spot beyond middle; a dark-grey suffusion at apex; cilia whitish, at apex grey.

Two examples.

Family EUPTEROTIDAE.

Ochrogaster contraria, Wlk., one example.

Family LASIOCAMPIDAE.

EREMAEA, n. gen. (ἐρημαιος, of the desert).

Head with dense anteriorly projecting hairs. Palpi short, porrect, densely hairy, not reaching beyond frons. Forewings with 2 from about middle of cell, 3 from ¾, 4 and 5 from near angle, 6 from near upper angle, 7 and 8 connate or short-stalked, 9 and 10 stalked, 11 from before middle. Hindwings with cell open between 4 and 6, discocellular being obsolete; 7 from near base of cell, 8 anastomosing with 7 near its origin, precostal spur obsolete. Abdomen with large terminal tuft of long hairs in male.

This distinct and interesting genus belongs to the *Crexa-Pinara* group.

EREMAEA ZONOSPILA.

Bombyx zonospila, Low.: Trans. Roy. Soc., S.A., 1903, p. 150.

♂, 38 mm. Head and thorax pale-grey; palpi and lower edge of face blackish. Antennae grey-whitish; pectinations in male extremely long (12), ochreous. Abdomen fuscous; base and apical tuft pale-grey. Legs grey. Forewings elongate, costa straight, apex rounded, termen rounded, moderately oblique; pale-grey, with two lines of blackish dots more or less confluent, first from ⅓ costa to dorsum before middle, second from ⅔ costa to dorsum beyond middle, the two lines converging; the first line edged posteriorly and the second anteriorly with orange-ochreous dots; cilia pale-grey. Hindwings with termen strongly rounded; fuscous; cilia pale-grey.

Two male examples. The type is from Eucla, South Australia.

Family PYRALIDAE.

Subfamily PHYCITINAE.

Crocydopora cinigerella, Wlk., two examples.
Etiella behri, Zel., one example.

TYLOCHARES GONIOSTICHA, n. sp. (γωνιοστιχος, with angled line).

♂, 20 mm. Head fuscous, with some whitish irroration. Palpi whitish irrorated with grey, with a fuscous ring at the apex of each joint, and a fourth on middle of second joint.

Antennae fuscous; in male thickened, without sub-basal tuft. Thorax fuscous with some whitish irroration. Abdomen ochreous-fuscous; tuft whitish-ochreous. Legs fuscous, with fine whitish irroration. Forewings narrow, costa gently arched, apex rounded-rectangular, termen rounded, scarcely oblique; fuscous-grey with some patches of brownish suffusion, towards base and apex rather thickly irrorated with whitish; a tuft of raised scales in middle at $\frac{1}{6}$ followed by a brownish suffusion; an irregularly dentate dark-fuscous transverse line at $\frac{1}{3}$, edged anteriorly with whitish; a second tuft of raised scales on fold immediately following first line; a brownish spot in disc beyond middle edged anteriorly and posteriorly with dark-fuscous; a second dark-fuscous line, edged posteriorly with whitish, from $\frac{4}{5}$ costa, at first inwards, then bent outwards, and forming a very sharp prominent tooth in disc, above tornus obscured by a brownish suffusion; a terminal series of dark-fuscous dots; cilia grey, irrorated with white. Hindwings with termen slightly sinuate; whitish, with slight grey suffusion on apex and termen; cilia whitish.

This species should be easily distinguished by the raised tufts and sharply-angled posterior line of forewings.

One example, in good condition.

Subfamily PYRAUSTINAE.

Sceliodes cordalis, Dbld., one example.
Loxostege affinitalis, Led., nineteen examples.
Metasia, sp., one example.
Metasia, sp., one example.
Nomophila noctuella, Schiff., two examples.
Scoparia schizodesma, Low., one example.
Scoparia, sp., three examples.

Family TINEIDAE.

Subfamily OECOPHORINAE.

Macrobathra alternatella, Wlk. (?), one imperfect example, with the tornal spot obsolete; probably referable to this species.

Nephogenes, sp., one example.
Nov. gen., *et sp.* (?), two wasted examples.
Philobota, sp., one wasted example.
Heliocausta, sp., one example.

Subfamily XYLORYCTINAE.

Procometis, sp., one example.

Hymenoptera.

By WILLIAM MORTON WHEELER.

[*Contribution from Harvard University.*]

PLATES LXIV. TO LXVI.

Family FORMICIDAE.

Subfamily PONERIDES.

1. **MYRMECIA VINDEX**, F. Smith, var. **DESERTORUM**, n. var.

Worker.—Length, 15-17 mm.

Resembling the var. *nigriceps*, Mayr., in colouration, but with the red of the thorax and pedicel a shade more yellowish, and more like the typical *vindex* in size and pilosity, the latter being conspicuously more abundant than in *nigriceps*, especially on the thoracic dorsum. The sculpture of the thorax is also distinctly feebler and the surface more opaque than in this variety and the typical form.

Four workers from Todmorden.

2. **RHYTIDOPONERA CORNUTA**, Emery, subsp. **TAURUS**, Forel.

A single worker from Moorilyanna, agreeing very closely with a co-type in my collection.

3. **RHYTIDOPONERA (CHALCOPONERA) METALLICA**, F. Smith, var. **PURPURASCENS**, n. var.

Worker.—Length, 7 mm.

Differing from the typical *metallica* from Eastern Australia in colour, the head, thorax, petiole, and gaster being deep metallic-violet, with the legs, mandibles, and a large spot on the vertex purplish-brown, and the antennae black. The sculpture is very much like that of the typical form, except that the rugosity on the pronotum is somewhat more irregular and the fine rugae are more nearly of the same character on the first and second gastric segments.

A single worker from Moorilyanna.

4. **BOTHROPONERA PILIVENTRIS**, F. Smith.

A single worker, taken between the Musgrave Ranges and Moorilyanna.

5. **LEPTOGENYS (LOBOPELTA) CONIGERA**, Mayr., var. **CENTRALIS**, n. var.

Worker.—Length, 6·5-7 mm.

Differing from the typical form and the var. *adlerzi*, Forel, of Queensland in the following characters:—The head is somewhat broader in the region of the eyes, and these are decidedy more convex; the epinotum is much less angular, more rounded, and sloping; the petiole in profile lower in front and with a more evenly-rounded slope rising to the highest point at the posterior end of the segment; the petiole, the penultimate antennal joints, and the hairs on the body are decidedly longer than in *adlerzi*.

♂.—Length, 6·5 mm.

Head, including the eyes, broader than long; eyes very large; cheeks extremely short. Mandibles very small, far from meeting, with rounded, edentate tips. Clypeus very convex, but not carinate, with broadly-rounded anterior border. Antennal scape as long as the second funicular joint; first funicular joint longer than broad. Thorax through the wing insertions about as broad as the head through the eyes; mesonotum without Mayrian furrows, convex, broadly elliptical, a little longer than broad, not concealing the pronotum when seen from above. Epinotum rather long, in profile sloping, the base about twice as long as the declivity. Petiole similar to that of the worker, but proportionately shorter. Gaster and legs slender. Head and thorax subopaque, punctate-rugulose; gaster more shining, distinctly shagreened. Hairs and pubescence grayish, more abundant and the hairs shorter than in the worker. Head, thorax, petiole, and gaster black; antennae dark brown; genitalia and legs brownish-yellow. Wings grayish-hyaline, with brown veins and apterostigma.

Described from a single male and eleven workers taken at Moorilyanna.

6. Odontomachus haematoda, L., subsp. coriarius, Mayr.

A single large worker, measuring 11·5 mm., from Moorilyanna.

Subfamily MYRMICIDES.

7. Podomyrma bimaculata, Forel.

Two workers from Flat Rock Hole in the Musgrave Ranges, agreeing very closely with Forel's description of the typical form from Kalgoorlie, Western Australia.

8. Monomorium rothsteini, Forel, var. tostum, n. var.

Worker.—Length, less than 2 mm.

Differing from the typical form and the vars. *humilior*, Forel, and *leda*, Forel, in colour; the head, petiole, and postpetiole being dark castaneous-brown; the thorax, antennae, and legs reddish-brown; the gaster black. The nodes of the petiole and postpetiole are lower than in the type and more as in the var. *humilior*. The posterior margin of the head is distinctly excavated, the node of the petiole is more pointed than in the type, the epinotum proportionately smaller and more rounded and somewhat smoother and more shining above.

Two workers from the Everard Range.

9. MONOMORIUM (HOLCOMYRMEX) WHITEI, n. sp.

Pls. lxiv., fig. 2, and lxvi., fig. 1.

Worker major.—Length, 4-4·5 mm.

Head very large (1·3 mm. broad), subrectangular, as broad as long, nearly as broad behind as in front, with much-rounded posterior corners, straight, subparallel sides, and the posterior margin distinctly and acutely excised in the middle. Mandibles large and very convex, with four large, subequal teeth. Clypeus broad, its anterior border deeply excised in the middle, with two sharp carinae, each prolonged into a strong, acute tooth, which is flanked by a somewhat shorter and blunter lateral tooth. Frontal carina short and prominent; frontal area large, impressed, with a short median carinula behind; frontal groove distinct nearly as far as the middle of the head. Eyes very large, flat, nearly as long as the cheeks, in front of the median transverse diameter of the head. Antennae slender, 12-jointed, scapes curved at the base, slightly thickened at their tips, which extend a little beyond the posterior orbits; funiculi without a clava, all the joints longer than broad; joints 7-10 subequal, terminal shorter than the two penultimate joints taken together. Thorax broadest through the pronotum, where it is scarcely more than half as broad as the head. Pronotum very convex, almost conical in profile; mesonotum straight in profile, sloping backward to the mesoëpinotal suture, which is distinctly impressed. Promesonotal suture obsolete. Epinotum about two-thirds as broad as the pronotum, longer than broad, with subparallel sides; in profile with feebly and evenly convex base one and a half times as long as the slightly concave declivity, the two surfaces separated on each side by a distinct but blunt tubercle continued backward as a slight ridge. Petiole pedunculate, from above twice as long as broad through the node, which is rather high and conical, with very similar anterior and posterior surfaces, the former rising rather abruptly from the peduncle. Postpetiole from above somewhat broader than the petiole, about one and a half times as long as broad, in profile convex and rounded, but much lower than the petiolar node. Gaster large, broadly and regularly elliptical, somewhat flattened dorsoventrally. Legs rather long.

Surface of body, especially of the gaster, shining. Mandibles coarsely and rather obliquely rugose, and coarsely punctate along their borders. Head very finely and densely longitudinally striate and sparsely punctate, posterior corners a little smoother and more shining. Thorax, petiole, and postpetiole very finely and densely punctate and feebly rugulose on the epinotum; pronotum somewhat smoother and more shining on the middle above. Gaster and legs glabrous, shining, with fine, scattered, piligerous punctures. Hairs yellowish, coarse, bristly, rather long, erect, and moderately abundant on the body; shorter, oblique, and more numerous on the legs. Gula without a psammophore. Ferruginous-red; clypeus, frontal area, extreme anterior corners of the head, and the mandibular teeth black; gaster and legs paler than the remainder of the body, yellowish-red.

Described from four specimens taken at Flat Rock Hole in the Musgrave Ranges.

This species is very peculiar in having large eyes and two pairs of powerful teeth on the clypeus. The subgenus *Holcomyrmex* was supposed to be confined to North Africa, Asia Minor, and the Indian Region till Viehmeyer recently described from a worker minor a species *(H. foreli)* from Killalpaninna, South Australia. Although I have seen only major workers of *H. whitei*, I do not believe that they can be co-specific with *foreli*, for this form has no teeth on the clypeus, the gula bears a psammophore, the head is not sculptured above and behind, and the colour is very different, being described as chestnut-brown, with the head and gaster darker, the segments of the latter bordered with yellow, etc. *H. whitei* is undoubtedly a harvesting ant, like its North African and Indian congeners. The nests, of which Captain White secured an interesting photograph, are craters of a very peculiar, chimney-like form.

10. CREMATOGASTER WHITEI, n. sp.

Worker.—Length, 2 mm.

Head slightly broader than long, convex above, subrectangular, as broad in front as behind, with rather convex sides, rounded posterior corners, and feebly excised posterior border. Mandibles narrow, apparently 4-toothed. Clypeus very convex, with nearly straight anterior margin. Frontal area and groove absent; frontal carinae very short. Eyes moderately convex, their anterior orbits at the middle of the sides of the head. Antennae 11-jointed; scapes reaching a little beyond the posterior orbits; funicular joints 2-7 small, as broad as long; club 2-jointed, its basal about half as long as its terminal joint. Thorax very short and robust, nowhere marginate; pronotum and mesonotum together as broad as long, not separated by a suture and without a median carina, trapezoidal, rapidly tapering behind, with rounded humeri: in profile about as long as high, somewhat flattened dorsally; mesoëpinotal constriction narrow and pronounced. Epinotum short, broader than long, with the base flat and shorter than the declivity; the spines as long as the base, slender, parallel, acute, directed backward, and very slightly upward. Petiole a little longer than broad, a little broader in front than behind, with broadly-rounded anterior corners and straight sides. Postpetiole transverse, convex, without any trace of a median furrow, but distinctly emarginate behind. Gaster large, with straight anterior border. Legs rather slender.

Head, thorax, and pedicel opaque; mandibles very finely and densely longitudinally striated; head, thorax, and pedicel very finely, densely, and uniformly punctate: clypeus, front, and cheeks also finely longitudinally rugulose. Gaster shining, very finely and superficially reticulate. Hairs white, long, and erect on the clypeus and venter, short and almost absent on the upper-surface of the body, very minute, scattered and appressed on the scapes and legs. Pubescence very sparse and rather long, most distinct on the gaster. Dark-brown; gaster black; mandibles, antennae, and legs brownish-yellow, middle portions of femora and tibiae brown.

Described from a single worker taken in the Everard Range.

This species is easily distinguished from any of the other known Australian species of the genus by its peculiar sculpture. It seems to resemble *C. mjöbergi*, Forel, from Kimberley, North-western Australia, judging from the description; but this species has a three-jointed antennal club, the head is smooth and shining, and the mesonotum has a median longitudinal impression.

11. CREMATOGASTER LONGICEPS, Forel, var. CURTICEPS, n. var.

Worker.—Differing from the typical *longiceps* in the shape of the head and in its much darker colour. The head is only as long as broad and very nearly rectangular, with straight, parallel sides and very feebly concave posterior border. Above it is very shining, but covered with minute, scattered punctures. The body is reddish-brown throughout, except the gaster, which is black. The absence of pilosity is as conspicuous as in the type. There are, however, several long, slender hairs on the gula and clypeus, and the pubescence on the head and gaster is rather long, but very dilute.

Sixteen workers from Ellery Creek in the MacDonnell Ranges. The typical *longiceps* is also taken in Central Australia (Tennant Creek).

12. CREMATOGASTER XEROPHILA, n. sp.

Worker.—Length, 2·5-2·8 mm.

Head subrectangular, very little broader than long, with straight, parallel sides and posterior border. Eyes rather convex, behind the median transverse diameter of the head. Mandibles narrow, apparently 4-toothed. Clypeus very convex, with straight, entire anterior margin. Frontal carinae extremely small; frontal area distinct, triangular; frontal groove short and rather indistinct. Antennae 11-jointed; scapes reaching a little beyond the posterior border of the head; funiculus with a 2-jointed club; joints 3-8 as broad as long. Thorax rather small and narrow; promesonotal suture indistinct or obsolete; pronotum and mesonotum bluntly margined on the sides, together as broad as long, with broadly-rounded humeri, rapidly narrowing behind to the mesoëpinotal constriction, which is pronounced. In profile the dorsal surface is flattened and the mesonotum without a carina, falling rather abruptly behind to the mesoëpinotal suture. Epinotum with a very short base and a large, concave declivity between the spines, which are broad at the base, rapidly tapering and acute, as long as the base of the epinotum, laterally compressed and directed outward, upward, and backward. Petiole distinctly longer than broad, as broad behind as in front, with straight parallel sides, much rounded anterior and slightly rounded posterior corners. In profile it is wedge-shaped, narrow in front, with straight ventral and dorsal surfaces. Postpetiole globose, as broad as the petiole, without a trace of a longitudinal furrow or posterior emargination. Gaster acutely pointed, with straight anterior border.

Shining; mandibles and clypeus longitudinally rugulose: cheeks and sides of front finely striated, remainder of head glabrous, with fine, scattered, piligerous punctures. Thorax more opaque, its sides finely and densely punctate-rugulose, upper-surface of pronotum and mesonotum very coarsely and reticulately rugose. Concavity of epinotum shining, superficially and finely punctate. Petiole, postpetiole, and gaster smooth and shining. Hairs yellowish, sparse, slender, and tapering, erect on the body, short and appressed on the appendages. Anterior surfaces of the antennal scapes with a few erect hairs. Pubescence absent on the body. Chestnut-brown; head and gaster blackish; femora and tibiae darker than the thorax. In one specimen the thorax is as dark as the head. Described from five workers taken at Moorilyanna.

This species is quite distinct from any of the described Australian Crematogasters in the shape of the petiole and the very pronounced sculpture of the thorax.

13. CREMATOGASTER XEROPHILA, var. EXIGUA, n. var.

Worker.—Length, 1·5-1·7 mm.

Differing from the typical form in its smaller size, in the shorter antennal scapes, which scarcely reach beyond the posterior border of the head, and the differently shaped petiole and postpetiole. The petiole is scarcely longer than broad and a little broader behind than in front, the postpetiole has a distinct trace of a longitudinal furrow. The median funicular joints are a little more transverse. The head, scapes, and gaster are black, the thorax, petiole, and legs brown, the funiculi yellowish-brown.

Two workers from Moorilyanna.

Subfamily DOLICHODERIDES.

14. IRIDOMYRMEX DETECTUS, F. Smith, var. VIRIDIAENEUS, Viehmeyer.

This very handsome variety of one of the commonest Australian ants was recently described from Killalpaninna, South Australia. The body of the worker is deep metallic-green, sometimes with aeneous or violet reflections on the gaster. The mandibles, anterior border of head, antennae, and tarsi are ferruginous, the legs purplish-red. Among the material collected by Captain White are three workers from the Everard Range, one from Flat Rock Hole in the Musgrave Ranges, and a deälated female from Todmorden. The female is poorly preserved and very greasy, but seems to agree very closely in size, structure, and colouration with the female of the typical *detectus*. According to a note accompanying the specimens the nest of the var. *viridiaeneus* has a slit-shaped orifice.

15. IRIDOMYRMEX DISCORS, Forel, var. AENEOGASTER, n. var.

Worker.—Differing from the typical *discors* in colour and pubescence.

The head and thorax are deep-red, the antennae and legs dark-brown, the gaster with bronzy- instead of metallic-green reflections. The pubescence covering the body and appendages is decidedly more abundant, so that the whole surface seems to be more opaque. The head is shaped much as in the type, and is, if anything, a little larger and broader behind, approaching the condition in the subspecies *occipitalis*, Forel, but this and its var. *exilior*, Forel, are even paler in colour than the typical *discors*. The new variety is very close to var. *obscurior*, Forel, from Victoria, in pubescence, but this form is brownish-yellow, with the head and gaster brown, the latter with feeble metallic-green reflections.

A single worker from Flat Rock Hole in the Musgrave Ranges.

16. IRIDOMYRMEX CYANEUS, n. sp.

Worker.—Length, 1·5-1·7 mm.

Head a little longer than broad, as broad behind as in front, broadest in the middle through the convex sides. Posterior border nearly straight. Eyes rather large, feebly convex, in the median transverse diameter of the head. Mandibles small, retracted under the clypeus, which is very convex, with feebly and sinuately excised anterior border. Frontal area distinct, triangular; frontal carinae short; frontal groove absent. Antennal scapes extending to the posterior border of the head, funicular joints 2-10 slightly broader than long, first joint three times as long as broad. Thorax much narrower than the head, rather short; pronotum convex, evenly rounded, as broad as long; mesonotum a little broader than long, sloping, straight in profile; mesoëpinotal constriction short and deep; epinotum with a very convex, almost conical base, rising rather abruptly from the mesoëpinotal suture and falling behind into the rather steep and straight declivity. Petiole inclined forward, elliptical from behind, with rounded, entire apical border, narrower than the epinotum and about half as high. Gaster of the usual shape. Legs rather slender.

Surface of body shining, very finely but distinctly shagreened. Hairs whitish, absent except on the clypeus; pubescence extremely fine and appressed, visible only on the appendages. Body deep metallic-blue, antennae and legs piceous-black.

Two workers, one from Black Rock Hole in the Musgrave Ranges and one from Moorilyanna.

This species resembles *I. innocens*, Forel, in the shape of the thorax and petiole, but the head is of a very different shape, the antennal scapes and mesonotum are much shorter and the body is pilose and metallic.

17. IRIDOMYRMEX RUFONIGER, Lowne, var.

A single worker from Moorilyanna is very close to the var. *domesticus*, Forel, but is smaller (2·5 mm.). It may represent a distinct variety, but the material is insufficient to justify the introduction of a new name.

18. **IRIDOMYRMEX GRACILIS**, Lowne, supsp. **SPUROUS**, n. subsp.

Worker.—Length, 2·4-2·6 mm.

Differing from the typical *gracilis* in its much smaller size, in lacking all metallic reflections, and in having the petiole much more compressed anteroposteriorly, and therefore more acute at the apex. The pilosity and pubescence are somewhat less abundant, and the surface of the body is therefore more shining.

Three specimens, taken at Moorilyanna. These are not well preserved. More satisfactory material may show that this form is really a distinct species.

Subfamily CAMPONOTIDES.

19. MELOPHORUS LATICEPS, n. sp.

Pl. lxvi., fig. 2.

♀. Length, 8 mm.

Head, excluding the mandibles, nearly twice as broad as long, subrectangular, with rounded posterior corners and nearly straight posterior border. Eyes small, convex, just behind the median transverse diameter of the head. Ocelli very small and close together. Mandibles large, with oblique, coarsely 4-toothed blades, which are curiously prismatic, with two flattened planes on their upper-surfaces, meeting at an angle formed by a coarse ridge from the base to the third tooth from the apex. Clypeus very short and broad, feebly convex, with straight, entire anterior and curved posterior border. Frontal carinae very small; frontal area large but indistinct; frontal groove distinct, especially just in front of the ocelli. Antennae slender, scapes not reaching to the posterior border of the head; first funicular joint as long as the three succeeding joints together; joints 2-5 nearly twice as long as broad, remaining joints shorter, except the last, which is twice as long as the penultimate. Thorax very short and thickset, less than one and a half times as long as broad, and but little longer than high. Mesonotum evenly convex, nearly one and two-third times as broad as long. Epinotum very short, steep in profile, without distinct base and declivity, rounded and slightly convex above, more flattened below. Petiole small, thickened below, rapidly attenuated and narrowed above where the compressed border terminates in two flat teeth. Gaster large, broadly elliptical, somewhat flattened above. Wings as long as the body (8 mm.).

Very smooth and shining; mandibles coarsely and regularly longitudinally rugose; gaster finely shagreened. Gula and clypeus with very long, curved, yellow hairs, forming a distinct psammophore. Hairs shorter and very sparse on the remainder of the body; legs with abundant, short appressed hairs; those on the scapes similar, but even shorter. Mandibles deep-red; head, thorax, and petiole bright yellowish-red; gaster black; anus, transverse bands on the venter, the legs, and antennae yellow. Wings distinctly yellowish, with pale-brown veins and apterostigma.

A single specimen, taken between Todmorden and Wantapella. This may be the hitherto unknown female of *M. wheeleri*, Forel, originally described from Tennant Creek, Central Australia.

20. CAMPONOTUS (MYRMOTURBA) MACULATUS, Fabr., subsp. NOVAE-HOLLANDIAE, Mayr.

Numerous workers from Flat Rock Hole in the Musgrave Ranges. These are a little more hairy and somewhat larger than specimens from New South Wales, but hardly represent a distinct variety.

21. CAMPONOTUS (MYRMOTURBA) MACULATUS, Fabr., subsp. DISCORS, Forel.

One major and three minor workers from Flat Rock Hole in the Musgrave Ranges agree very closely with Forel's description of specimens from Pera Bore, New South Wales. The thorax of the major is much like that of the var. *laetus*, Forel, from Tennant Creek, Central Australia, but the colour is that of the typical form of the species.

22. CAMPONOTUS (MYRMOTURBA) LATRUNCULUS, n. sp.

Pl. lxvi., figs. 3 and 4.

Worker major.—Length, about 9 mm.

Head large, not longer than broad, broader behind than in front, very convex above, with the posterior border nearly straight and the sides convex. Eyes rather large and convex. Mandibles convex, 6-toothed. Clypeus feebly, but distinctly, carinate, its anterior border projecting as a short, rather narrow lobe, with straight median border and the sides rather broadly emarginate. Frontal area distinct, transverse, diamond-shaped; frontal groove distinct, frontal carinae moderately far apart, curved and diverging behind. Antennae rather slender, scapes extending about one-fifth their length beyond the posterior border of the head. Thorax robust, with distinct promesonotal and mesoëpinotal sutures, pronotum as broad as long, convex, rounded above; mesonotum also convex, continuing the curve of the pronotum. There is a distinct but slight constriction of the thorax at the mesoëpinotal suture, behind which the rather narrowed and only slightly compressed epinotum descends with a rounded slope, lacking a distinct base and declivity. Petiole small and narrow, in profile cuneate, with convex ventral and anterior and flat posterior surface; apical border rather sharp, bluntly pointed when seen from behind. Gaster broadly elliptical. Legs rather slender, hind tibiae cylindrical.

Smooth and shining; mandibles sparsely and not very coarsely punctate; remainder of body finely shagreened; cheeks and gaster sparsely punctate. Hairs yellow, erect, sparse on the body and along the flexor surfaces of the femora and at their tips. Hind tibiae with several rows of bristles on their flexor surfaces. Pubscence very fine and dense, visible only on the sides of the thorax and on the appendages. Chestnut-red; antennal scapes blackish; gaster black, with yellowish margins to the segments. Legs yellowish-brown.

A single specimen from Todmorden.

I am unable to refer this ant to any of the Australian species described by previous writers. The thorax feebly approaches that of *C. (Myrmosphincta) intrepidus*, Kirby, in shape, but the form of the head and clypeus show that it belongs more properly in the subgenus *Myrmoturba*.

23. CAMPONOTUS (MYRMOGONIA) EREMICUS, n. sp.

Pl. lxvi., figs. 5 and 6.

Worker major.—Length, 7 mm.

Head trapezoidal, longer than broad, broader behind than in front, with straight, transverse posterior border and feebly convex cheeks. Eyes large, convex, their anterior orbits at the middle of the sides of the head. Mandibles 6-toothed, their outer margins straight at the base, strongly convex at the tips. Clypeus strongly carinate, its anterior border not produced or lobed, feebly and sinuately excised in the middle. Frontal area small, triangular, indistinct; frontal groove distinct; frontal carinae closely approximated anteriorly, curved, and more diverging behind. Antennae slender, scapes reaching about two-fifths of their length beyond the posterior corners of the head. Pronotum as broad as long, flattened above, with a sharp semicircular ridge around its anterior surface, and extending back to the middle of its sides. Promesonotal suture pronounced: mesoëpinotal suture absent, the mesonotum and epinotum together twice as long as broad, so compressed laterally as to be reduced dorsally to a rather sharp, blade-like edge. In profile the mesoëpinotum is as high as long, the dorsal edge feebly and evenly convex and as long as the declivity, which is abrupt and feebly concave. Petiole rather narrow, cuneate in profile, thick below, with a distinct ventral protuberance, feebly convex anterior and straight posterior surface, and sharp apical border, which seen from behind is rounded and entire. Gaster of the usual shape. Legs rather slender; tibiae cylindrical.

Shining; thorax slightly more opaque. Mandibles rather coarsely punctate; head and thorax densely punctate-reticulate, gaster very finely, transversely rugulose. Hairs erect, short, very sparse, present only on the mandibles, clypeus, front, and venter. Femora with a few bristles at their tips: tibiae with a sparse row of bristles along their flexor surfaces. Pubescence absent on the body, very short, sparse, and appressed on the tibiae and scapes. Black; mandibles, clypeus, cheeks, and front deep-red; antennae and tarsi reddish-brown; coxae, femora, and tibiae yellow; knees infuscated.

Worker minor.—Length, 5·5-6 mm.

Body slender; head subrectangular, about as broad behind as in front, nearly one and a half times as long as broad, with straight posterior and lateral borders. Eyes large and prominent, situated at a distance less than their length from the posterior corners of the head. Clypeus carinate, its anterior border entire, subangularly produced in the middle. Antennae very slender, reaching nearly half their length beyond the posterior corners of the head. Thorax very long, narrow, and low, less compressed behind than in the major worker, in profile evenly rounded, highest in the middle, pronotum not marginate in front and on the sides, epinotum without distinct base and declivity, but merely continuing the gentle curve of the mesonotum. Petiole with its anterior surface more convex and its upper border more transverse than in the major worker. Gaster small and narrow.

Sculpture much as in the major worker, but thorax more shining and cheeks sparsely and feebly foveolate. Pilosity much more abundant than in the large worker. There are very sparse, erect hairs on the whole upper-surface, including the petiole, and also on the gula. The head is covered with sparse and rather long yellowish pubescence. Head and thorax brown, petiole and gaster black; scapes and legs, except the tarsi, yellow, the latter and the anterior half of the head pale-brown.

Described from a single major and three minor workers from the Everard Range. As all of these specimens were glued on the same card it would seem that they must have been taken from the same nest. The major and minor workers, however, differ in so many important particulars as to suggest some doubt as to their being co-specific.

This species is very closely related to *C. (Myrmogonia) michaelseni*, Forel, from South-western Australia, judging from Forel's description, but differs in so many details of structure, sculpture, and colour that I have felt constrained to describe it as new. It is more easily distinguished from the other Australian species of the subgenus *Myrmogonia: evae*, Forel; *oetkeri*, Forel; *adami*, Forel; *lownei*, Forel; *gibbinotus*, Forel; and *rubiginosus*, Mayr.

24. CAMPONOTUS (DINOMYRMEX) SUBNITIDUS, Mayr.

To this species I refer a single minor worker taken between Todmorden and Wantapella. It is, however, even less pilose than the typical *subnitidus*, and probably represents a distinct variety, which cannot be satisfactorily described till the worker major is brought to light.

25. CAMPONOTUS (MYRMAMBLYS) AUROFASCIATUS, n. sp.

Pl. lxvi., fig. 7.

Worker (medio [?]).—Length, 5-5·5 mm.

Head strongly trapezoidal, very slightly longer than broad, broader behind than in front, with straight posterior border and sides and rather sharp posterior corners, convex in the middle above, feebly depressed behind. Eyes moderately large, convex, nearly circular, well behind the median transverse diameter of the head. Mandibles with rather straight external borders, 6-toothed. Clypeus distinctly but bluntly carinate, with feebly rounded, entire anterior border. Frontal area obsolete, frontal groove distinct, frontal carinae approximated anteriorly, curved and diverging behind. Antennae long, scapes extending nearly half their length beyond the posterior border of the head. Thorax through the pronotum nearly as broad as the head, rapidly narrowed and laterally compressed behind, so that the mesonotum and epinotum are reduced above to a rounded ridge. Pronotum broader than long, flat above, anteriorly and laterally distinctly submarginate. In profile the thorax is highest in the mesonotal region and the dorsal outline is an even curve continued over the epinotal base, which is fully three times as long as the declivity. The angle separating the base from the declivity is rounded and obtuse. Promesonotal suture distinct, that between the mesonotum and epinotum obsolete. Petiole thick and rather narrow, very convex in front, flat behind, with blunt, evenly-rounded, and entire apical border. Gaster broadly elliptical, rather flattened. Hind tibiae slightly compressed.

Opaque and very densely and finely punctate; mandibles slightly shining, with numerous large, elongate punctures. Clypeus and cheeks with a few sparse, shallow foveolae. The dense punctuation of the gaster is distinctly finer than that of other portions of the body. Hairs golden-yellow, erect, moderately long, not abundant, rather obtuse, most conspicuous on the upper-surface of the head, epinotum, and gaster. Pubescence yellow, very sparse, and rather long, distinct on the head, especially on the clypeus, gaster, and appendages. Tips and flexor surfaces of femora with a few long, erect hairs. Black; apical portions of mandibles deep-red; each gastric segment with a conspicuous dull-golden band on its posterior border.

Described from six workers, five from the Musgrave Ranges and one from Moorilyanna. This beautiful species is readily distinguished by its peculiar head, very opaque surface, and the unusual banding of the gaster.

26. CAMPONOTUS (MYRMOSPHINCTA [?]) WHITEI, n. sp.

Pl. lxvi., fig. 8.

Worker (minor [?]).—Length, 4·5-5 mm.

Head trapezoidal, deepest in the frontal region, a little longer than broad, slightly broader behind than in front, with straight sides and feebly concave posterior border. Eyes moderately large, very convex, nearly circular, distinctly behind the median transverse diameter of the head. Mandibles with slightly convex external borders and oblique, 6-toothed apices. Clypeus strongly carinate, rather convex, with entire anterior border, subangularly produced in the middle. Frontal area rather large, triangular; frontal groove lacking; frontal carinae approximated in front, curved outward in the middle, and again approximated behind. Antennae rather long and stout; scapes surpassing the posterior border of the head by fully two-fifths their length. Thorax rather long, nearly as broad as the head through the pronotum, which is flattened above, bluntly marginate anteriorly, and seen from above a little broader than long. Promesonotal suture pronounced. There is a deep, saddle-like impression in the region of the mesonotal suture, which is obsolete, and the thorax is also laterally compressed in this region. The epinotum is very convex and rounded, and resembles somewhat that of a *Dolichoderus*, but in profile the base passes without an angle into the vertical, slightly concave declivity of about the same length. Petiole nodiform, seen from above regularly, transversely elliptical, and about twice as broad as long, in profile less than twice as high as long, the node with three surfaces, a short vertical anterior, a horizontal rounded dorsal, and a vertical posterior surface. Gaster rather small, broadly elliptical. Tibiae cylindrical.

Mandibles shining, very coarsely punctate. Remainder of body, including the appendages, opaque; head, thorax, and petiole densely and beautifully coarsely punctate, the punctures being somewhat smaller on the upper-surface of the head and somewhat larger on the mesopleurae. Gaster and legs very minutely and densely punctate. Hairs whitish, erect, blunt, but not very stiff, rather long but not abundant, most conspicuous on the front, epinotum, and first gastric segment. Legs and scapes with more numerous, more pointed, shorter, and suberect hairs. Deep castaneous-red, mandibles and legs paler, upper-surface of head and thorax somewhat darker, gaster black, with narrow, sordid, yellowish margins to the segments.

This beautiful species, described from two specimens, was taken at Flat Rock Hole in the Musgrave Ranges. I have placed it in the subgenus *Myrmosphincta* with many misgivings. It would seem to belong more properly in *Orthonotomyrmex*, near *mayri*, Forel, on account of the peculiar structure of the thorax and petiole, but this subgenus, though confined to the Old World, is not known to be represented in Papua or Australia.

27. Camponotus (Myrmosphincta [?]) leae, n. sp.

Pl. lxvi., fig. 9.

Worker minor.—Length, 4·5 mm.

Head, including the mandibles, subelliptical, longer than broad, with straight, subparallel sides, slightly broader behind through the eyes than at the mandibular insertions. Behind the eyes, which are very convex and hemispherical, the head narrows rapidly to a short occipital border, so that it has no posterior corners. Mandibles with straight external and oblique apical borders, the latter armed with at least five coarse teeth. Clypeus convex, strongly carinate, its anterior border slightly impressed in the middle. Frontal area triangular, distinct, impressed; frontal groove replaced by a rather strong raised line or ridge; frontal carinae not widely diverging behind. Antennae long, scapes extending nearly half their length beyond the posterior border of the head; all the funicular joints decidedly longer than broad. Thorax long and slender; seen from above the pronotum is as broad as long, a little narrower than the head, with rounded, sloping humeri; the mesonotum and epinotum narrower, with subparallel sides, the mesonotum as long as the epinotum, but the suture obsolete between them; promesonotal suture well developed. In profile the upper-surface of the mesonotum is straight and slopes gradually to the base of the epinotum, where the thorax is feebly but distinctly constricted. In profile the base of the epinotum is horizontal and only slightly convex, more than twice as long as the sloping declivity into which it passes through a very obtuse angle. Petiole of extraordinary shape, longer than high, anteriorly and posteriorly cylindrical, but surmounted in the middle by a thick node which, viewed from above, is nearly circular, but is diamond-shaped in profile, its anterior surface being straight and inclined obliquely upward and forward, the dorsal surface horizontal and very feebly convex, and the posterior surface straight and inclined obliquely backward and downward and parallel with the anterior surface. The ventral surface is almost straight. Gaster broadly pyriform, narrowed, and rather pointed in front. Legs slender; tibiae cylindrical.

Opaque, except the gaster, which is distinctly shining. Mandibles very finely shagreened and coarsely punctate. Head, thorax, and petiole uniformly and densely punctate, legs and gaster coarsely, transversely shagreened. Hairs white, long, slender, pointed, and erect, most abundant on the upper surface of the head, epinotum, petiole, and gaster, somewhat shorter on the scapes and legs. Deep-red; mandibles and femora more yellowish-red; mandibular teeth, anterior corners of head, front, and vertex between the carinae and eyes and back as far as the occipital border, articulations of antennal funiculi, the whole gaster, basal portions of petiole, coxae, and apical third of femora, black; tibiae and tarsi reddish-brown, the tips and bases of the tibiae darker.

Described from two specimens taken at Flat Rock Hole in the Musgrave Ranges.

This remarkable species, easily distinguished by its singular thorax and even more singular petiole and striking colouration, is quite as difficult as the preceding species to assign to any of Forel's subgenera of *Camponotus*. I have placed it in *Myrmosphincta* with a query because the thorax is distinctly constricted, and because there seems to be no place for it in any of the other subgenera. Whether or not it should constitute the type of a new subgenus can be determined only after the discovery of the major worker.

28. Calomyrmex splendidus, Mayr., subsp. purpureus, Mayr., var. smaragdinus, Emery.

A single worker from Flat Rock Hole in the Musgrave Ranges.

29. Calomyrmex splendidus, Mayr., subsp. purpureus, Mayr., var. eremophilus, n. var.

Worker.—Differing from the preceding variety in the colouration of the legs and the antennae, which are black instead of red, without metallic reflections. The head and thorax are beautiful metallic green, the gaster black, the mesopleurae and fore coxae metallic-purple as in the var. *smaragdinus*.

Seven workers, four from the Everard Range and three from Flat Rock Hole in the Musgrave Ranges.

30. POLYRHACHIS (CAMPOMYRMA) LONGIPES, n. sp.

Pls. lxv., figs. 1 and 2, and lxvi., fig. 10.

Worker.—Length, 9-10 mm.

Head subrectangular, excluding the mandibles, a little broader behind than in front, with straight sides and rather sharp, distinctly marginate posterior corners, the occipital region convex in the middle, the frontal region convex, and the vertex rather flat. Eyes large and convex, situated a distance about equal to their longest diameter from the posterior corners of the head. Mandibles with moderately convex external and 5-toothed apical borders. Clypeus distinctly carinate, produced in the middle as a rounded lobe, bearing at its edge a row of regular, fine, acute teeth, its sides broadly excised. Frontal area small, triangular, impressed; frontal groove distinct; frontal carinae closely approximated in front, gradually diverging behind, nearly straight. Antennae very long and slender, scapes reaching fully half their length beyond the posterior border of the head; first funicular joint more than five times as long as broad, remaining joints growing successively shorter. Thorax long, its dorsal surface flattened and but slightly convex in profile, very sharply marginate on the sides, so that the pleurae are slightly concave, the margin rather deeply incised at the pronounced promesonotal and only feebly indented at the distinct mesoëpinotal suture. Pronotum as long as broad, a little narrower behind than in front, its anterior corners in the form of small acute teeth, which are as long as broad at their bases. Mesonotum a little longer than broad, narrower behind than in front, with evenly rounded anterior and lateral borders; base of epinotum longer than broad, rather narrow, especially behind, where it is produced into two parallel, flat, blunt teeth, which are longer than broad at their bases, as long as their distance apart, and directed backward and upward. The small notch-like space between the teeth is not marginate. Declivity of epinotum shorter than the base, sloping, feebly convex. Petiole thick at the base, when seen from above as long as broad, with convex anterior and posterior surfaces, the apical border compressed and bearing four long, slender, acute spines, directed upward and backward, the inner pair approximated and shorter, so that an imaginary line joining the tips of all four spines would be straight. Ventral surface of petiole distinctly concave. Gaster broadly elliptical, convex above and below, first segment occupying nearly half of its surface. Legs very long and slender; tibiae cylindrical.

Mandibles lustrous, very finely and densely striated; remainder of body subopaque; head, thorax, and petiole very finely punctate-rugulose, the rugules distinctly longitudinal and regular on the posterior portion of the head and on the thoracic dorsum. Gaster and legs very densely shagreened, and covered with small, sparse, piligerous punctures. Hairs yellowish, erect, short, and sparse, almost absent on the uppersurface, except on the clypeus, mandibles, and gaster; very distinct, more abundant, shorter, and bristly on the scapes and legs; pubescence absent except on the venter, where it is yellowish, long, sparse, and appressed. Black; mandibles and apical halves of the funiculi brownish-red; legs, including the coxae, brownish-yellow, with the tarsi and basal half of the tibiae black.

Described from twenty-four workers taken in the Everard Range.

This species, though apparently related to *P. (C.) froggatti*, Forel, and *pyrrhus*, Forel, is readily distinguishable from these and all other known Australian members of the subgenus, by its regularly dentate (not crenate) clypeus, very long appendages, and the shape of the petiolar and epinotal spines. It appears also to be very distinct in its habits. Like the other species of *Campomyrma*, it lives in the ground, but Captain White's photographs show that instead of nesting under stones, like *P. femorata*, F. Smith, *micans*, Mayr., and *sydneyensis*, Mayr., of Eastern Australia, it builds a beautifully regular crater, the rounded, exposed surfaces of which it thatches with a layer of mulga leaves.

31. POLYRHACHIS (CAMPOMYRMA), sp.

A single deälated female specimen, measuring about 6·5 mm., from the MacDonnell Ranges, evidently belongs to a species allied to *leae*, Forel, or *micans*, Mayr., but as the females of the great majority of Australian Campomyrmas are quite unknown I refrain from describing it at the present time.

DESCRIPTION OF PLATES.

[*Plates lxv. and lxvi. are from photographs taken by S. A. White.*]

PLATE LXIV.

Fig. 2.—Several ants' nests, constructed of clay, belonging to a new species, *Monomorium (Holcomyrmex) whitei*, Wheeler.

Plate LXV.

Fig. 1.—An ants' nest, covered with mulga leaves, belonging to a new species, *Polyrhachis (Campomyrma) longipes*, Wheeler.

Fig. 2.—The same at nearer view.

Plate LXVI.

Fig. 1. *Monomorium (Holcomyrmex) whitei*, Wheeler.
,, 2. *Melophorus laticeps*, Wheeler, head.
3. *Camponotus (Myrmoturba) latrunculus*, Wheeler, head.
4. ,, ,, ,, Wheeler, side view of thorax.
5. ,, *(Myrmogonia) eremicus*, Wheeler, head.
6. ,, ,, Wheeler, side view of thorax.
7. *(Myrmamblys) aurofasciatus*, Wheeler.
8. *(Myrmosphincta [?]) whitei*, Wheeler.
9. ,, ,, *leae*, Wheeler.
10. *Polyrhachis (Campomyrma) longipes*, Wheeler.

(*j*) BOTANY.

By J. M. Black.

Plates LXIX. and LXX.

This list comprises 200 species collected by Capt. White.

The following have been previously recorded for Central Australia (Northern Territory), but not for South Australia Proper:—*Swainsona canescens*, *Acacia cibaria*, *Eucalyptus pachyphylla*, *Olearia Ferresii*, *Calotis Kempei*, *Helipterum Charsleyae*, and *H. Fitzgibbonii*. New species for Tate's "Central District" (in the north-western corner of which are situated the Musgrave and Everard Ranges) are:—*Eragrostis lacunaria*, *E. Brownii*, *Cyperus exaltatus*, *Bassia longicuspis*, *Chenopodium microphyllum*, *Haloragis odontocarpa*, *Myoporum deserti*, *Waitsia corymbosa*, *Podocoma nana*, *Helipterum Tietkensii*, and *Gnaphalium japonicum*.

Four species are described which are believed to be new to science (in the genera *Triodia*, *Menkea*, *Pterigeron*, and *Toxanthus*), and also a variety of the Native Tobacco (*Nicotiana suaveolens*).

Only two botanical collections of importance have been previously made in the region between Oodnadatta and the Musgrave Ranges. The first was that of Ernest Giles in his exploration of 1876, and the second was that of R. Helms, collector to the Elder Expedition of 1891. Giles' plants were dealt with by Baron von Mueller in the "Journal of Botany," xv., 269-281, 300-6, 344-9 (1877), and Helms' specimens (phanerogams and vascular cryptogams) were identified by Mueller and Tate in the Transactions of this Society, xvi., 333-83 (1892).

The positions of the minor localities mentioned in this report are as follows:—Coongra Creek, a branch of the Alberga Creek; Indulkana Springs, in the Indulkana Range, at the head of the Indulkana Creek; Lambinna Soakage, on the Alberga, about 40 miles west of Todmorden Station; Flat Rock Hole, about 16 miles east of the Musgrave Ranges: Moorilyanna Native Well, between the Musgrave Ranges and the Indulkana Range; Mount Carmeena, the second highest peak of the Everard Range; Mount Illbillie, highest peak in the Everard Range; Wantapella Swamp, just south of the Indulkana Range: Vaughan Hill, south of Alberga Creek, near Lambinna Soakage.

The additions between brackets are Capt. White's field notes.

POLYPODIACEAE.—*Notholaena vellea*, R. Br. Glen Ferdinand, Musgrave Ranges; Indulkana Springs and 15 miles west thereof. [A few plants here and there amongst the rock in the most protected places had resisted the drought.] *Cheilanthes tenuifolia*, Swartz. Moorilyanna Native Well. [Found amongst all the granite outcrops and ranges.] *Grammitis Reynoldsii*, F. v. M. Mount Illbillie, Everard Range. [A few specimens found in damp places.]

CONIFERAE.—*Callitris robusta*, R. Br. "Murray Pine." Tietkens' Birthday Creek, Musgrave Ranges. [First met with in the Indulkana Range at Indulkana Springs. Growing in great quantity amongst the rocks in Glen Ferdinand: also met with in the Everard Range. It does not grow to anything like a fair-sized tree.]

GRAMINEAE.—*Panicum gracile*, R. Br. Moorilyanna Native Well. [Not often seen.] *P. leucophaeum*, H. B. et K. Moorilyanna Native Well. [Found growing amongst the rocks; much eaten down by mammals.] *Neurachne Mitchelliana*, Nees. Moorilyanna Native Well. *Eriachne ovata*, Nees. Forty miles west of Oodnadatta. *E. pallida*, F. v. M. Musgrave Ranges. [A very common erect grass growing in valleys between the ranges.] These two determinations are not altogether satisfactory, and it is evident from these and other Northern specimens that the genus *Eriachne* requires a careful revision. *Danthonia bipartita*, F. v. M. Twenty miles east of Musgrave Ranges; Everard Range. [Not a common grass; much relished by stock.] *Pollinia fulva*, Benth. Twenty miles west of Lambinna Soakage; Moorilyanna Native Well. [Often met with along watercourses and around waterholes; growing to the height of 5 or 6 feet at times.]

Diplachne loliiformis, F. v. M. Glen Ferdinand. Stunted specimens under 10 cm. high. *Pappophorum nigricans*, R. Br. Moorilyanna Native Well; Musgrave Ranges and 10 miles east thereof. [A common grass, west of Wantapella Swamp; stock seem to like this grass when it is young.] *P. avenaceum*, Lindl. Wantapella Swamp. [Not a common grass; only found in this one locality.] *Anthistiria ciliata, L.* "Kangaroo Grass." Musgrave and Everard Ranges. [No doubt owing to the long drought, this grass was very stunted; in places and where the rain had fallen it was 2 to 3 feet high; sometimes found on very stony ground.] *Aristida arenaria*, Gaud. Moorilyanna Native Well.

Triodia aristata, *sp. n.* (tab. lxx.). *Gramen caespitosum glabrum rigidum, foliorum laminâ involutâ pungente, vaginâ subturgidâ striatâ, ligulâ in circulo brevissimo pilorum conversâ, paniculâ angustâ, glumis vacuis 12-13 mm. longis carinatis 3-5-nerviis longe acuminatis, spiculis compressis 5-6-floris, glumâ floriferâ 9 mm. longâ bifidâ et inter lobos acutos aristam 2-3 mm. longam gerente deorsum 9-nerviâ, nervis ternatim congregatis villosis.* "Porcupine Grass." Nearest to *T. irritans*, R. Br., but differs in the longer, almost awned outer glumes and in the acute lobes of the flowering glume with the midnerve excurrent in an awn which is twice as long as the lobes. An exactly similar specimen is in the Tate Herbarium, placed under *Schedonorus littoralis*, Beauv., to which it bears considerable resemblance, especially as this *Triodia*, at least when dried, is straw-coloured. Tate's specimen is unlabelled, but a loose label in the folio is marked "Mt. Aroona, 30/8/83." This place is near the eastern shore of Lake Torrens, and very probably the specimen was gathered there. [Grew in very large bushes on the sandy flats between the ranges.]

Eragrostis eriopoda, Benth. Everard Range and surrounding country. [A very common grass all over the granite country; too hard and wiry to be of much good.] *E. falcata*, Gaud. Forty miles west of Oodnadatta. A starved specimen with panicle only 15 mm. long. *E. chaetophylla*, Steud. Tietkens' Birthday Creek. [Seems to be a common grass in the Musgrave Ranges.] *E. Brownii*, Nees. Wantapella Swamp. Spikelets 10-25 mm. long, flowers 20 to over 50. [This pretty little grass was seen growing on the hard soil near claypans.] *E. pilosa*, Beauv. Flat Rock Hole and Moorilyanna Well. [Only saw this plant growing in one locality on a large claypan, which must be a small lake after rain.] *E. lacunaria*, F. v. M. Moorilyanna Native Well. [A common grass amongst the granite rocks; a good fodder grass.] *Stipa scabra*, Lindl. Musgrave Ranges. Leafblades very rough with short; stiff hairs. [This grass is not plentiful anywhere; we saw more of it in the Musgrave Ranges than anywhere else; stock seem to relish it.] *Bromus arenarius*, Labill. Everard Range. [This good fodder grass was not met with in any quantity, and only seen in the Everard Range.]

CYPERACEAE.—*Cyperus fulvus*, R. Br. Mount Illbillie and elsewhere in Everard Range; Moorilyanna Native Well. [A common plant in watercourses and low ground.] *C. exaltatus*, Retz. Neales Creek. Some of the primary rays 16 cm. long. [Great masses found near waterholes which hold for some time; attains the height of 6 feet.] *C. rotundus*, L. var. *pallidus*, Benth. "Nut Grass." Twenty miles west of Lambinna Well; Coongra Creek. [Found in very dry watercourses.] *C. difformis*, L. Neales Creek. [Only observed in the Neales Creek; it was growing on flooded ground, and attained the height of 12 to 24 inches.]

JUNCACEAE.—*Xerotes leucocephala*, R. Br. Lambinna Soakage. [Only met with at Lambinna Soakage, in the sandy bed of the Alberga.]

LILIACEAE.—There is a small liliaceous plant from Lambinna Soakage, in bud only. Leaves narrow-linear; perianth-segments narrow, 3-5-nerved; anthers much longer than filaments; style undivided; 2 ovules in each cell of ovary. Perhaps a new species of *Chlorophyton*.

URTICACEAE.—*Ficus platypoda*, Cunn. "Native Fig." Everard Range; Moorilyanna Native Well. [First seen at Indulkana Springs. Never seen more than a few yards away from rocks. In the Everard Range the trees grew to great size; some were from 10 to 13 yards across and 12 feet high, branches resting on the ground. Natives eat the fruit.] *Parietaria debilis*, Forst. Moorilyanna Native Well. [A soft bright-green plant, very delicate; growing in the deep cracks between the granite boulders.]

PROTEACEAE.—*Grevillea nematophylla*, F. v. M. Forty miles west of Oodnadatta. *Hakea lorea*, R. Br. "Corkbark Tree" Sandy country west of the Everard Range. Capt. White's specimens are in flower and are dated 6/8/14. In November of the same year I received from Miss Staer specimens gathered at some point west of Oodnadatta and showing ripe and half-ripe fruits. As supplementary to Bentham's description (Fl. Aust., v., 496) and Bailey's (Queensl. Fl., 1346) it may be noted that the ovary in the flower is almost glabrous, but the young fruit, which is subconical in shape with an incurved point, is hoary with a very fine, close tomentum. This wears off later, and the ripe capsule is lanceolate-ovoid, subcompressed, 30-45 mm. long by 17-20 mm.

broad, more or less curved at the apex and sometimes shortly beaked. The leaves are all simple and vary from 25-45 cm. in length, are at first pubescent but become glabrous with age. The bark is corky. [A common tree throughout the country, and known as the "Cork Tree" owing to the cork-like bark. The natives north of Oodnadatta make shields from the wood on account of it being very light and soft. This tree is very twisted in shape, and the fruits are clustered in great bunches. The flowers contain much honey, for which the ants climb up the trunk in millions; it also affords food to honey-eating birds.]

LORANTHACEAE.—*Loranthus pendulus*, Sieb. Officer Creek, west of Everard Range. [Quantities of this parasitical plant were found growing upon the mulga.] *L. Quandang*, Lindl. Moorilyanna Native Well. [This species was not nearly so plentiful as the others.] *L. linearifolius*, Hook. Moorilyanna Native Well. [This was the only locality where I saw this small species; it was growing on the mulga (*Acacia aneura*).] *L. exocarpi*, Behr. Twenty and 40 miles west of Oodnadatta; 15 miles west of Indulkana Springs. [Numbers of large bunches were found on the mulga trees.]

SANTALACEAE.—*Santalum lanceolatum*, R. Br. Oodnadatta. [A pretty shrub bearing a quantity of dark berries; grows on flooded ground.] *Fusanus acuminatus*, R. Br. "Quondong." Leaves thick, with prominent lateral nerves. [Very few of these shrubs were seen during the trip; owing to the drought, most of them had not fruited for years.]

CHENOPODIACEAE.—*Chenopodium nitrariaceum*, F. v. M. Wantapella Swamp. Seed horizontal, as shown on pl. 28 of Mueller's "Iconography of Australian Salsolaceous Plants," although it is described as vertical in all the diagnoses which I have seen. [Large bunches, round in shape, up to 8 or 10 feet high, growing all over the depression known as Wantapella Swamp; it seems to be eaten by stock.] *Ch. cristatum*, F. v. M. Mount Illbillie. Dwarf specimens with procumbent stems not more than 2 cm. long. *Ch. microphyllum*, F. v. M. Musgrave Ranges. Leaves larger than usual (5-10 mm. long); seed black, shining; in the only flower in which I found stamens there were five of them. [Only met with in Glen Fedinand.] *Kochia sedifolia*, F. v. M. "Bluebush." Ninety miles west of Todmorden Station; between Moorilyanna Native Well and Everard Range. Differs from the type in having the white hairs of the tomentum stellate instead of simple or forked. A similar specimen has been sent me from Mount Gunson by Mrs. Beckwith. In Captain White's specimens the connivent lobes are often raised above the rather narrow wing so that the summit of the fruiting perianth is convex, showing an approach towards *K. pyramidata*. I would suggest calling this var. *stellulata*. *K. villosa*, Lindl. "Cotton Bush." Moorilyanna Native Well; Flat Rock Hole, Musgrave Ranges: Wantapella Swamp; Lambinna Soakage. [Found in patches all through the country, but very little west of Indulkana Springs. Good fodder for all stock.] *K. decaptera*, F. v. M. Moorilyanna Native Well. [Not a common plant in this locality; a few bunches growing at the foot of the granite rocks.] *K. aphylla*, R. Br. Thirty-five miles west of Moorilyanna Native Well. *K. eriantha*, F. v. M. Indulkana Springs and 15 miles west thereof. There are some puzzling points about these specimens and about similar ones received from Arkaringa through Miss Staer. All the flowers I have examined are female; even in the youngest I could find no sign of stamens. The fruit is obliquely placed within the perianth and the radicle is always descending. The horizontal wing of the perianth has 5 broad lobes, hidden (as are also the 5 short lobes covering the fruit) among the dense wool. Similar specimens collected by Helms in 1891 at Arkaringa are in the Tate Herbarium labelled "*Bassia Dallachyana* = *Kochia eriantha*." [A common plant about Indulkana Springs, but is not found far west from that point.] *Atriplex vesicaria*, Hew. "Bladder Saltbush." Forty miles west of Oodnadatta; Indulkana Springs; Lambinna Soakage; Moorilyanna Waterhole. [A common plant; many fine plains are covered with this good fodder.] *A. nummularia*, Lindl. Indulkana Springs. [Very large bushes of this plant were often seen in the ranges.] *A. spongiosa*, F. v. M. Fifty miles west of Oodnadatta, and at Oodnadatta. [This plant does not extend very far west of Oodnadatta.] *Rhagodia spinescens*, R. Br. Fifty miles west of Oodnadatta. *Rh. nutans*, R. Br. Everard Range; Moorilyanna Native Well. [Not often found; generally growing up in the shelter of some other plant, and made conspicuous by its bright red berries.] *Bassia quinquecuspis*, F. v. M., var. *villosa*, Benth. Wantapella Swamp. *B. Birchii*, F. v. M. Glen Ferdinand. Agrees with specimens in the Tate Herbarium of *B. Cornishiana*, F. v. M., which was afterwards reduced to a variety of *B. Birchii*. The fruiting perianth, however, resembles rather that of *B. echinopsila* in the illustrations of Mueller's "Salsolaceous Plants" than that given for *B. Birchii*. The 2 shorter spines of the 5 are united towards their base, and the summit and tube of the perianth are sharply ridged between them. [A quantity of this bush was growing in the glen.] *B. longicuspis*, F. v. M. Fifty miles west of Oodnadatta. Fruiting perianth broad and gibbous at base, 2-lobed on the anterior side where it sits on the branch; spines 4-5, the longest two often 25 mm. long. [A common bush on the stony tablelands; much relished by camels.] *B. paradoxa*, F. v. M. Everard and Musgrave Ranges. [Plentiful; the sharp-spined fruits gave much trouble to man and beast.] *Salsola Kali*, L., var. *strobilifera*, Benth. Twenty miles west of Oodnadatta; Moorilyanna Native Well. [Found throughout the country; much relished by camels.] *Enchylaena tomentosa*, R. Br. Wantapella Swamp. [Growing on ground subject to floods.]

AMARANTACEAE.—*Amarantus Mitchellii*, Benth. Indulkana Springs. *Alternanthera triandra*, Lam. Moorilyanna Native Well. [Found growing amongst the granite rocks.] *Trichinium incanum*, R. Br. Mount Illbillie. I do not see how it is possible, at least in dealing with South Australian and Central Australian specimens, to keep *T. incanum*, R. Br., and *T. obovatum*, Gaud., separate, and Brown's name is, of course, the prior one. The distinctions laid down by Bentham (Fl. Aust., v., 218 and 221) do not hold good in the specimens I have seen. The bracts are never really glabrous, but are always woolly at base and beset with very short glandular hairs in the upper part or they are woolly all over. Where they are most glabrous in appearance the flower-spikes are often cylindrical and 25 mm. long, while on globular spikes the bracts may be densely woolly. The hairs (except the minute glandular ones) are stellately branched; that is to say, the barbs are arranged in several whorls around the axis of the hair, and are much shorter on the hairs of the bracts and bracteoles than on those of the leaves and branches. The hairs themselves vary much in length. Bentham makes "bracts glabrous or nearly so" one of the leading characters of *T. obovatum*, but Gaudichaud himself says "*bracteis pilosiusculis*," and his figure shows them pubescent. Var. *grandiflorum*, Benth. Five miles west of Todmorden Station; Glen Ferdinand. Perianth 12-15 mm. long; bracts and bracteoles straw-coloured, glandular-hairy in the upper part. [Met with on tablelands and also in the sandy valleys of the ranges.] *T. alopecuroideum*, Lindl. Between Moorilyanna Native Well and Everard Range. *T. exaltatum*, Nees. Vaughan Hill, 70 miles west of Todmorden Station; Wantapella Swamp. [This plant was not nearly so plentiful as we found it north of Oodnadatta the previous year (1913).] *T. helipteroides*, F. v. M. Everard Range; Musgrave Ranges; Vaughan Hill. [Quite a quantity of these bright little flowers were seen in the valleys of both ranges; not nearly so plentiful on the tablelands.] *T. corymbosum*, Gaud. East of Everard Range. [It was only in the vicinity of the Everard

Range that this plant was met with, growing in the thick mulga scrub.]

AIZOACEAE.—*Trianthema crystallina*, Vahl. Lambinna Soakage; Wantapella Swamp. [Seen on country subject to flooding.]

PORTULACACEAE.—*Calandrinia ptychosperma*, F. v. M. Glen Ferdinand.

CARYOPHYLLACEAE.—*Polycarpaea corymbosa*, Lam. Coongra Creek. [Only observed this plant in the one locality.]

CRUCIFERAE.—*Stenopetalum lineare*, R. Br. (?) Between Flat Rock Hole and Moorilyanna Native Well. This may be a small hairy form of this species, of which it has the flowers and short pedicels. The leaves are mostly radical, pinnatisect with narrow lobes and more or less tomentose with branched hairs. The specimens are only about 12 cm. high. *S. nutans*, F. v. M. Glen Ferdinand and Moorilyanna Native Well. [Growing in small colonies.] *Blennodia trisecta*, Benth. Ninety miles west of Todmorden Station. Pods more swollen than usual. [Often met with in dry watercourses.] *B. canescens*, R. Br. Near Todmorden Station; Tietkens' Birthday Creek. [Where a shower of rain had fallen a week or so previous to our visit quite a quantity of this plant had sprung up from the sandy soil.]

Menkea hispidula, *sp. n.* (tab. lxx.). *Herba annua nana (speciminibus nostris 2-3 cm. altis), omnino pilis patentibus instructa, foliis lineari-oblongis obtusis integris vel paucidentatis radicalibus in petiolum angustatis, petalis luteis sepala patentia triente superantibus, siliculis ovoideo-globosis pubescentibus pedicello paulo brevioribus.* Fifteen miles west of Indulkana Springs. This species differs from all others in its minute size and stiffish spreading hairs. The pods probably resemble those of *M. sphaerocarpa* in shape, but as none are quite ripe and the specimens are in poor condition, it is impossible to say to what extent they may be compressed or globular. Two similar specimens are in the Tate Herbarium labelled "*Capsella cochlearina*, var. *ochrantha*, from the Upper Arkaringa, Helms, 20/5/91." They certainly do not belong to *Capsella*, as the ovary has no septum and contains over 60 ovules. One of our specimens (gathered July 12, 1914) has a ripening capsule with the numerous seeds arranged as in *Menkea*. Apart from the number of seeds, these specimens bear a considerable resemblance to the description of *Capsella villosula*, also collected by Helms on the Arkaringa Creek and described as a new species by Mueller and Tate, but of which the Tate Herbarium contains no specimen. In the report of the Elder Expedition (Trans. Roy. Soc., S.A., xvi., 335) both *C. cochlearina*, var.

ochrantha, and *C. villosula* are mentioned. *Lepidium rotundum*, DC. Everard Range. [Found all over the country, varying much in size according to the rainfall.] *L. phlebopetalum*, F. v. M. Fifty miles west of Oodnadatta. *L. papillosum*, F. v. M. Glen Ferdinand. [Quite common in the Glen, but did not observe it elsewhere.]

PITTOSPORACEAE. — *Pittosporum phillyraeoides*, DC. Everard Range; Wantapella Swamp; and 20 miles east of Musgrave Ranges. There is also a specimen from the Everard Range with leaves much smaller and appressed-hairy below, the pedicels and branchlets hoary and the flowers mostly terminal. There is no fruit. This is perhaps the variety from the Upper Arkaringa Valley referred to by Mueller and Tate (Trans. Roy. Soc., S.A., xvi., 336), but the leaves of Capt. White's specimen are acute and hooked, as in the type. [Not a common shrub; generally found near granite outcrops or in the ranges. They were nearly all in fruit at the time of our visit, and never attaining more than 10 or 12 feet.]

LEGUMINOSAE.—*Indigofera brevidens*, Benth. Moorilyanna Native Well. [A common plant, growing in some instances into a large bush.] *Psoralea patens*, Lindl. Glen Ferdinand. [Fine bushes, up to 5 feet in full bloom.] *Crotalaria dissitiflora*, Benth. Mount Carmeena. [Generally found growing in the loose sand of the dry watercourses.] *Clianthus Dampieri*, Cunn. "Sturt Pea." Between Everard Range and Wantapella Swamp. [The country as a whole was far too dry for this beautiful plant, but where a thunderstorm had passed in one or two places we observed great masses in full bloom.] *Swainsona canescens*, F. v. M. Glen Ferdinand. *S. oligophylla*, F. v. M. Wantapella Swamp. [Only seen once or twice; this is owing to the drought most likely.] *S. microphylla*, A. Gray. Tietkens' Birthday Creek *S. lessertiifolia*, DC. Glen Ferdinand and Moorilyanna Native Well. Villous specimens; long white hairs mixed with the black ones of the calyx. [This pleasing little plant was very plentiful where a shower or two of rain had fallen.] *Glycine sericea*, Benth. Moorilyanna Native Well. [Found creeping over the rocks and bushes.] *Trigonella suavissima*, Lindl. Wantapella Swamp. [Only met wth in the one locality.] *Cassia Sturtii*, R. Br. Ten miles west of Moorilyanna Native Well. [A great quantity of this pretty shrub was met with east of the Musgrave Ranges.] *C. artemisioides*, Gaud. Everard Range and Flat Rock Hole. [Many of these bright-flowering shrubs were met with, and brightened the sombre bushland.] *C. Sophera*, L. Moorilyanna Native Well. [A great many large bushes were growing round the Native Well; most of the leaves had fallen, and only the seedpods remained.] *Acacia cibaria*, F. v. M. Officer Creek, Indulkana Springs, and Everard Range. In flower only; phyllodia 9-13 cm. long. [Not nearly so plentiful as the common mulga *(A. aneura)*.] *A. doratoxylon*, Cunn. Moorilyanna Native Well. Rhachis of flower-spike golden-pubescent. [Large bushes up to 15 feet high grew under the sheltered south side of the huge granite boulders; in full blossom.] There are also specimens of a species near *A. cyperophylla*, F. v. M., gathered in the Musgrave Ranges, but the phyllodes are more slender and the branches lack the reddish tinge of the "Red Mulga." There are neither flower nor fruits. *A. strongylophylla*, F. v. M. Everard Range. [This beautiful shrub was only met with in the Everard Range, from 3 to 8 feet high; they were shapely bushes, covered in golden blossom.] *A. tetragonophylla*, F. v. M. Thirty miles west of Oodnadatta and 20 miles east of Musgrave Ranges. [Although generally dispersed, it is not a common shrub.] *A. salicina*, Lindl. "Native Willow." Oodnadatta. [Fine trees of this beautiful drooping species were met with all through the country.] *A. aneura*, F. v. M. (?) Flat Rock Hole. In leaf only and the phyllodia unusually narrow (scarcely exceeding 1 mm. in breadth). "Round-leaved Mulga" is the local name. [I am firmly of the opinion that this is a distinct form from the common mulga. The two are often intermingled, but many isolated colonies of the round-leafed form were met with. I am sure there are three, if not four species of mulga in the north-west country, but unfortunately hardly any were bearing flowers or pods.]

GERANIACEAE.—*Erodium cygnorum*, Nees. Glen Ferdinand and 15 miles west of Indulkana Springs. [Owing to the dryness of the country very little "geranium" was seen; in some places much dried and blackened remains of this plant indicated a thunder-burst some time before.]

ZYGOPHYLLACEAE.—*Zygophyllum iodocarpum*, F. v. M. Glen Ferdinand. [Only met with this plant once in the Musgrave Ranges.] *Z. fruticulosum*, DC. East of Everard Range. Petals only 4 mm. long, fading from yellow to white. [Not a common plant; growing on the sandy soil.] *Z. apiculatum*, F. v. M. Indulkana Springs. *Tribulus terrestris*, L. Glen Ferdinand.

RUTACEAE.—*Eriostemon linearis*, Cunn. Between Moorilyanna Native Well and Everard Range. [Only met with the once; a good-sized bush, covered in blossoms.]

EUPHORBIACEAE.—*Euphorbia Drummondii*, Boiss. Fifteen miles west of Indulkana Springs; 40 miles west of Oodnadatta and Glen Ferdinand. [Grows very close to the ground;

very conspicuous on account of its bright-red colour; supposed to be poisonous and to kill stock.] *E. eremophila*, Cunn. Moorilyanna Waterhole.

SAPINDACEAE.—*Dodonaea microzyga*, F. v. M. Indulkana Springs. [Only seen in this locality; growing amongst the rocks.] *D. viscosa*, L. Mount Illbillie; Indulkana Springs; Glen Ferdinand and between Moorilyanna Native Well and Everard Range. Foliage and fruits very sticky; style 10-12 mm. long and persistent on many of the fruits, even when half-ripe. [A very marked feature of the vegetation growing amongst the granite rocks. Some of the bushes were very wide-spreading, the leaves were of a bright-green with a varnish-like coating, which made them glisten in the sun.]

MALVACEAE.—*Malvastrum spicatum*, A. Gray. Ninety miles west of Todmorden Station. *Sida petrophila*, F. v. M. Moorilyanna Native Well. *Hibiscus Pinonianus*, Gaud. Everard Range. Only the upper leaves are present, and these are tripartite, as are those of some specimens from Barrow Range, Western Australia, in the Tate Herbarium. *H. Farragei*, F. v. M. Mount Illbillie. In fruit only; the seeds glabrous and slightly wrinkled. [A few large plants were growing amongst the tobacco plants close to the granite rocks.] *Abutilon tubulosum*, Hook. Everard Range. [Rather a striking plant, with large yellow flowers; only found growing in the ranges, and not common.]

STERCULIACEAE.—*Ruelingia magniflora*, F. v. M. Mount Illbillie and Everard Range. [This is a most beautiful plant, growing in great masses up to 4 feet high, and covered in dark-red blossoms; plentiful in the Everard Range, growing on the shaded (south) sides of the great masses of granite.]

DILLENIACEAE.—*Hibbertia glaberrima*, F. v. M. Mount Illbillie and other parts of the Everard Range. Our specimens agree with those similarly named from the Everard Range (Helms) and Mount Olga (Giles) in the Tate Herbarium, but in the flowers examined I only found 90-130 stamens and no staminodia. The leaves are 5-12 cm. long, and therefore much longer than in the descriptions of either Mueller or Bentham.

FRANKENIACEAE.—*Frankenia pauciflora*, DC. Between Everard Range and Wantapella Swamp. [Not a common plant; generally found on the stony sides of hills or on the tablelands.] Var. *serpyllifolia*, Benth. East of Everard Range. [Only met with in one place.]

MYRTACEAE.—*Thryptomene Maisonneuvii*, F. v. M. Sand ridges on Officer Creek. [This beautiful little shrub was in full blossom; it seems confined to the sandhill country.]

Melaleuca glomerata, F. v. M. Glen Fedinand and near Mount Illbillie. [This plant was found on nearly all the dry creeks in the ranges; in some places it was very thick.] *M. Preissiana*, Schau. Glen Ferdinand. No flowers, and fruits smaller than usual. [The creek at the top end of the Glen was lined with the shrub.] *Eucalyptus oleosa*, F. v. M. Between Moorilyanna Native Well and Musgrave Ranges; 20 miles east of Everard Range; near Mount Illbillie. A broad-leaved form, in fruit only. [A small colony of about half a dozen trees resembling mallee in growth was met with in a small depression in the country, the rough reddish-brown bark extending some distance up the main branches. These trees had such broad leaves that I took it to be a distinct variety from those met with in the Everard Range.] *E. pachyphylla*, F. v. M. Near Mount Illbillie. In fruit only. [Only observed in the one locality; a few rather stunted trees growing between the ranges.] *E. terminalis*, F. v. M. "Bloodwood." Everard Range. Ripe fruits urn-shaped, 25-28 mm. long. [This is a common species in the ranges, but I have not met with it any great distance from them on the open country.] *E. rostrata*, Schlecht. "Red Gum." Between Indulkana Springs and Moorilyanna Native Well. [Every watercourse throughout the country was lined more or less by these trees. Although there were some good healthy specimens in many places, they did not attain the size of those growing on the watercourses towards the MacDonnell Ranges.]

HALORAGIDACEAE.—*Haloragis odontocarpa*, F. v. M. Officer Creek. [Growing in the sandy bed of the creek.]

UMBELLIFERAE.—*Didiscus glaucifolius*, F. v. M. Indulkana Creek and 20 miles west of Lambinna Soakage. [Great masses of this plant were met with in full blossom in the sandy watercourses.] *Hydrocotyle callicarpa*, Bunge. Everard Range.

ASCLEPIADACEAE. —. *Sarcostemma australe*, R. Br. Vaughan Hill. [This strange plant seems to be confined to the stony tablelands and rocky ridges.]

OLEACEAE.—*Jasminum lineare*, R. Br. Everard Range and Glen Ferdinand. [This plant is of creeping habits, and was often seen twining amongst the mulga and other shrubs in the ranges.]

CONVOLVULACEAE. — *Convolvulus erubescens*, Sims. Wantapella Swamp. [Often met with both in the ranges and on the plains.]

BORAGINACEAE.—*Trichodesma zeylanicum*, R. Br. Mount Illbillie. [Growing in masses close up to the rocks, with a southern aspect. The clusters of blue flowers were very effective.] *Heliotropium asperrimum*, R. Br. Musgrave

Ranges and 20 miles west of Lambinna Soakage. [Quite large bushes were found in the dry sandy beds of watercourses; the flowers had a beautiful scent like the cultivated species.]

VERBENACEAE. — *Verbena officinalis*, L. Wantapella Swamp. Carpels reddish-brown, with 4-5 longitudinal ridges on the back.

LABIATAE.—*Mentha australis*, R. Br. Neales Creek. *Teucrium racemosum*, R. Br. Forty miles west of Oodnadatta.

SOLANACEAE.—*Solanum ellipticum*, R. Br. Fifty miles west of Oodnadatta; Glen Ferdinand. [Not a common plant; met with in two localities.] *S. Sturtianum*, F. v. M. Vaughan Hill. [Only met with in the one locality.] *S. petrophilum*, F. v. M. Mount Illbillie. [This was a common plant in the Everard Range, growing low down amongst the rocks.] *Datura Leichhardtii*, F. v. M. Mount Illbillie. *Nicotiana suaveolens*, Lehm. "Native Tobacco." Glen Ferdinand and 20 miles west of Lambinna Soakage. [A common plant, growing near or in all the ranges, occasionally found in the thick mulga or along watercourses; natives do not seem to make any use of this plant.]

Nicotiana suaveolens, *Lehm.*, *var. n.* **excelsior** (tab. lxx.). *Variat a formâ typicâ altitudine majore (1-2 m.), epidermide fere glabrâ, foliis magnis in alas longas decurrentibus, calyce 25 mm. longo pilis glandulosis consperso, lobis lineari-subulatis ciliatus, corollâ 5-6 cm. longâ, capsulâ vix tubum calycis aequante, seminibus magnis foveolatis.* "Giant Tobacco." Mount Carmeena, Everard Range. Mentioned by R. Helms in the report of the Elder Expedition (Trans. Roy. Soc., S.A., xvi., 248, 293, 317, and 320). He says the plant was called (in 1891) "okiri" by the Everard Range tribe and "pulanda" by the Blyth Range tribe, but Capt. White found that the natives of the Everard Range now call it "kâman," and Mount Carmeena was named after the tobacco. Specimens collected by Helms, and similar to ours, are placed in the Tate Herbarium under *N. suaveolens*, and the plant is listed in Mueller and Tate's report without any reference to its structural peculiarities, but it seems to me to constitute at least a well-marked variety of this polymorphous species. It is noteworthy that ordinary specimens of *N. suaveolens* brought from drier parts of the same region and mentioned above do not approximate to var. *excelsior* at all. They are short (not over 30 cm. high), small-flowered, and with very hairy stems and pedicels. [There is not the slightest doubt that this plant is a distinct variety of *N. suaveolens*. I collected specimens of the latter not far from where the giant variety was growing. The natives roll the leaves of this plant into a round ball and hold it between the lips, twisting and turning it round by means of the tongue. Natives value the plant much, and when the camels approached it became very excited and pulled up the plants and placed them up on the rocks out of reach of the dreaded animals.]

SCROPHULARIACEAE.—*Peplidium Muelleri*, Benth. Fifty miles west of Oodnadatta, July 1. Mostly in fruit, with a few flowers. The capsules are ovoid but obtuse, not acute as described in Fl. Aust., iv., 500, and in Tate's Handbook, 153. When ripe they open in 4 valves from the the base. Moorilyanna Native Well, July 7. In flower only. [Plentiful in some localities, growing round claypans.]

BIGNONIACEAE.—*Tecoma Oxleyi*, Cunn. Glen Ferdinand; granite rocks near Moorilyanna Native Well. Usually placed under *T. australis*, R. Br., but seems to be specifically distinguished by larger flowers (calyx 4-5 mm. long, corolla 25 mm. long, longitudinally red-streaked inside), leaflets narrow and more numerous (7-9) and without any gloss on the upper face. *T. Oxleyi* is a desert plant growing in country with an average rainfall of 5 to 10 inches, while *T. australis* grows in the eastern coastal lands with a rainfall of 30 to 60 inches. [This is certainly not *T. australis*, for this plant grows in the most arid situations and does not take the habit of that species. The great bunches of flowers are very many times larger than those of *T. australis*. Although it is often stated that the natives make their spear-shafts from this plant, I did not see any shoots fit for this purpose, nor did I see one instance where the natives had cut any branches for that purpose.]

ACANTHACEAE.—*Justicia procumbens*, L. Glen Ferdinand. [Low bush, 10 or 12 inches high; not a common plant.]

MYOPORACEAE.—*Myoporum deserti*, Cunn. Everard Range. [Not a common tree; a few were met with in the ranges attaining the height of 10 to 15 feet, and were in fruit at the time of our visit.] *Eremophila latifolia*, F. v. M. Moorilyanna Native Well. Young leaves and calyx very sticky or glossy; leaves narrow and almost entire in our specimens, which are in flower only (collected July 13). [A number of large bushes of a very bright-green were growing on the sheltered sides of the rocks.] *E. neglecta*, J. M. Black. Indulkana Springs and 15 miles west thereof. Since describing this species (Trans. Roy. Soc., S.A., xxxviii., 469) I have seen the drawings of *E. viscida*, a Western Australian species, in Mueller's "Myoporinous Plants of Australia," and was struck by the resemblance to *E. neglecta* in several respects. Professor Ewart kindly compared the latter with specimens of *E. viscida* in the National Herbarium of Victoria, and writes:—"The specimen of *E. neglecta* seems to come very close to, if not to be the same thing as *E. viscida*, Endl. For complete certainty, however, a fruiting specimen would be necessary in order to see if the characteristic enlargement of the calyx-lobes takes place." Later he wrote:—"The Elder Expedition specimen named *E. Duttonii* in our herbarium seems to me to belong to *E. viscida*, and shows the characteristic enlargement of the calyx-lobes." It should be observed, however, that the ovary of *E. viscida* is described by Endlicher as villous, and is so depicted in Mueller's plate (which is said to be drawn from one of Endlicher's specimens out of the Botanic Museum of Vienna), while the ovary of *E. neglecta* is glabrous and shining. The specimen from Indulkana Springs shows that the corolla may attain a length of 30 mm. *E. viscida* is mentioned in Mueller and Tate's report of Tietkens' expedition into Central Australia, 1889 (Trans. Roy. Soc., S.A., xiii., 105) as having been gathered between Mount Connor and Basedow Range. None of Tietkens' specimens are in the Tate Herbarium; they are probably in Melbourne, and I do not know whether Professor Ewart refers to them in his above remarks, or to specimens of *E. viscida* obtained from Western Australia, where the type was gathered by Roe. It is quite possible that Tietkens' Central Australian plant is *E. neglecta* rather than *E. viscida*. Since writing the above I have received the following reply from the Director of the Royal Botanic Gardens, Kew, to whom a specimen of *E. neglecta* was sent:—"There are no specimens of *Eremophila viscida*, Endl., at Kew, but judging from Endlicher's original description, from that given by Bentham in his 'Flora Australiensis,' and from the figure published by F. von Mueller, it is not the species now described and figured as *E. neglecta*. In particular the glabrous ovary and style of *E. neglecta* and the shape of the anterior corolla-lobe are sufficient to distinguish the species from *E. viscida*, Endl. The specimen of *E. neglecta* has not been matched with any specimen preserved in the Kew Herbarium." [Found as far west as the Musgrave Ranges.] *E. Latrobei*, F. v. M. Musgrave Ranges. At Lambinna Soakage and 15 miles west of Indulkana Springs were also gathered specimens of the hoary variety first described by Mueller and Tate as *E. Tietkensii*, but afterwards recognized as a "broad-leaved, canescent variety" of *E. Latrobei*. [Often found growing amongst the rocks on the sides of the ranges, and sometimes attaining the height of 10 or 12 feet.] *E. Gilesii*,

F. v. M. Flat Rock Hole east of Musgrave Ranges. [Not nearly so robust a shrub as other members of the genus, and it seems to prefer the sandy soil.] *E. Freelingii*, F. v. M. Twenty miles west of Oodnadatta; Moorilyanna Native Well and between that spot and the Everard Range. [Grows into a very compact bush, in small colonies generally, on stony ground.] *E. longifolia*, F. v. M. Everard Range and Moorilyanna Native Well. [This plant has quite a drooping habit; it grows much more slender and higher than the other species.] *E. Brownii*, F. v. M. Twenty miles west of Oodnadatta and Wantapella Swamp. [This species seems to prefer low localities subject to flooding; the bush is large and rigid.] *E. Paisleyi*, F. v. M. East of Everard Range. The calyx segments are broader than those of the Central Australian specimens, spatulate in shape, slightly overlapping in the upper part, and strongly ciliate; pedicels in 2's and 3's. [Not so robust as many other members of the same genus.] *E. Willsii*, F. v. M. Glen Ferdinand. Leaves 3-4 cm. long. *Pholidia scoparia*, R. Br. Wantapella Swamp. [Only seen in one locality; the stock seem to eat this bush.]

Rubiaceae.—*Pomax umbellata*, Soland. Mount Illbillie. [Not a common shrub; growing high up in the rocks.]

Cucurbitaceae. — *Melothria maderaspatana*, Cogn. Mount Carmeena and Coongra Creek. [Often met with creeping over shrubs or rocks; where water had lately flowed the plant was covered in bright-red berries.]

Campanulaceae.—*Wahlenbergia gracilis*, DC. Indulkana Springs. *Isotoma petraea*, F. v. M. Mount Carmeena and Officer Creek.

Goodeniaceae.—*Goodenia glauca*, F. v. M., var. *sericea*, Benth. Fifty miles west of Oodnadatta. *G. cycloptera*, R. Br. Officer Creek. *Velleya paradoxa*, R. Br. East of Everard Range. *Brunonia australis*, Smith. "Native Pincushion." Bed of Officer Creek and Lambinna Soakage. Luxuriant specimens with very silky leaves. [Not often seen; in both instances it was growing in dry watercourses. Very attractive with its cornflower-blue.] *Scaevola humilis*, R. Br. Glen Ferdinand.

Compositae. — *Olearia Ferresii*, F. v. M. Everard Range. Viscid and strong-scented even in the dried state. *O. megalodonta*, F. v. M. Everard and Musgrave Ranges. This stiff shrub, with its ray-flowers in 2 rows and its compressed achenes, is very near the genus *Felicia*. The heads vary somewhat in size, the ray-flowers number 35-50, and the inner flowers about 70. I could find no short outer bristles of the pappus. [Flowers bright-blue.]

Pterigeron cylindriceps, *sp. n.* (tab. lxix.). *Herba erecta, pilis glandulosis conspersa, foliis obovatis vel oblongis in petiolum brevem angustatis crenato-dentatis 6-10 mm. longis, involucro ante floritionem oblongo-cylindrico circiter 20 mm. longo inter folia floralia sessili, bracteis herbaceis acutis sursum purpurascentibus interioribus glabris lanceolatis 18 mm. longis, floribus exterioribus filiformibus numerosis brevissime ligulatis (ligulâ vix 1 mm. longâ), interioribus circiter 15, pappi setis barbellulatis, achaeniis tenuibus pubescentibus.* Fifty miles west of Oodnadatta and at Moorilyanna Waterhole. Nearest to *P. adscendens*, but differs in the longer and cylindrical head, the almost glabrous involucre, and the much more numerous flowers in each head. A similar specimen from Mount Parry is placed in the Tate Herbarium under *P. liatroides*.

P. adscendens, Benth. Fifty miles west of Oodnadatta. Dwarf specimens 2-5 cm. high. *Minuria leptophylla*, DC. Everard Range and Wantapella Swamp. [A not uncommon flower of a bright-blue colour.] *M. denticulata*, Benth. Moorilyanna Native Well. [Found growing at the foot of the granite rocks and boulders.] *Podocoma nana*, Ewart and White. Glen Ferdinand and Everard Range. The ripe achenes have a beak 5 mm. long; pappus 9 mm. long, consisting of about 15 long unequal bristles and an outer row of several short bristles. Recorded also from Mount Lyndhurst (M. Koch) and Torrens Plain (R. Tate). Professor Ewart kindly confirmed the determination. [A very common plant which varied much in size, no doubt according to the amount of moisture in the locality where it grew. Found on sandy soil, also around claypans.] *Brachycome ciliaris*, Less., var. *glandulosa*, Benth. Glen Ferdinand. I feel some doubt about this determination, the achenes not being quite ripe. The specimens are perennial, the leaves with narrow, distant teeth, and the involucral bracts very blunt, with scarious, purplish, jagged margins. I have a similar specimen from Miss Staer, gathered near Oodnadatta. *Calotis Kempei*, F.v. M. Twenty miles west of Lambinna Soakage; Tietkens' Birthday Creek; also from near Oodnadatta (Miss Staer). Leaves vary from obovate-cuneate to lanceolate. Some of the ripe achenes on one specimen bear a single barbed awn in addition to the inrolled pappus-crown, thus showing a tendency towards *C. dentex*, R. Br. [Not a common plant; only observed once or twice during the trip.] *Calotis latiuscula*, F. v. M. et Tate. Moorilyanna Native Well and 50 miles west of Oodnadatta. [Not a common plant; rarely seen.] *C. cymbacantha*, F. v. M., var. *pumila*, Benth. Glen Ferdinand and claypan between Flat Rock Hole and

Moorilyanna Native Well. [Not common; growing in small colonies.] *Siegesbeckia orientalis*, L. Moorilyanna Native Well. [Growing 8 or 12 inches high in the shelter of the rocks.] *Craspedia chrysantha*, Benth. Fifty miles west of Oodnadatta. *Calocephalus platycephalus*, Benth. Everard Range and east thereof; 20 miles west of Lambana Soakage; Indulkana Creek. *Myriocephalus Stuartii*, Benth. Oodnadatta; Everard Range; and 35 miles west of Moorilyanna Native Well. Some specimens only 6-7 cm. high. [Found all over the country; in some instances in very large masses.] *M. Rudallii*, Benth. Moorilyanna Waterhole. [This was the only locality in which the plant was seen.] *Gnephosis cyathopappa*, Benth. Everard Range. In bud only. *Angianthus pusillus*, Benth. (?) Between Flat Rock Hole and Moorilyanna Native Well. The specimens are dwarf, and the heads so young that only the bracts are recognizable. [Grew in tufts low to the ground, like moss.] *Ixiolaena leptolepis*, Benth. Forty miles west of Oodnadatta; Everard Range; Wantapella Swamp. [This plant was plentiful nearly all over the country, and grew on tablelands and sandy country alike.] *Rutidosis helichrysoides*, DC. Mount Carmeena. [This handsome plant was growing along the south side of the range, attaining the height of 2 to 3 feet.]

Toxanthus Whitei, *sp. n.* (tab. lxix.). *Herba parva annua albo-lanata 6-10 cm. alta, caulibus gracilibus ascendentibus saepe simplicibus, foliis angusto-linearibus mollibus 5-10 mm. longis, capitulis terminalibus 40-50-floris, involucri bracteis 11-13 linearibus rigidis glanduloso-puberulis scarioso-marginatis 5 mm. longis, corollâ luteâ recurvâ 5-dentatâ, achaenio (immaturo) papilloso rostrato.* Everard Range and claypan between Flat Rock Hole and Moorilyanna Native Well. Clearly distinguished from the two other known species of *Toxanthus* by the more erect growth, the numerous bright-yellow flowers, and the greater number of involucral bracts. Named after the collector, Capt. S. A. White. [Only a few plants were seen, and these seemed to have come up after a very light shower which fell over a restricted area. The stems grow close to the ground until the buds begin to appear, when they curved upwards.] *Podolepis canescens*, Cunn. Everard Range and between Moorilyanna Native Well and the Musgrave Ranges. [Quite a common flower; growing on the sandy soil.] *P. Siemssenia*, F. v. M. Wantapella Swamp; Everard Range; and 20 miles west of Lambinna Soakage. [A common little plant, growing in great masses in the sandy country.] *Schoenia Ayersii*, J. M. Black (*Helichrysum Ayersii*, F. v. M.) Musgrave Ranges and 10 miles east thereof. If *Schoenia* is maintained as a genus distinct from *Helichrysum* (and this is the course taken by Bentham in the "Flora Australiensis," by Bentham and Hooker in "Genera Plantarum," and by Engler and Prantl in the "Natürliche Pflanzenfamilien"), then *H. Ayersii* must go along with *S. Cassiniana*. Besides the compressed achenes, it has the undivided style of the inner flowers which characterizes the genus *Schoenia*. [Very plentiful throughout the country traversed.] *S. Cassiniana*, Steetz. Mount Carmeena and between Moorilyanna Native Well and Everard Range. [In some localities this bright-flowering plant covered acres of ground amongst the mulga.] *Helichrysum apiculatum*, DC. Glen Ferdinand. [This grows into quite a large bush at times.] *H. podolepideum*, F. v. M. Wantapella Swamp and Officer Creek. The form with white rays to the inner involucral bracts. [Not often seen; compact growth; very attractive, with bright-yellow flowers and almost white leaves.] *H. bracteatum*, Willd. Mount Carmeena. [Not common; some fine plants seen in this locality.] *H. Lawrencella*, F. v. M. Ninety miles west of Todmorden Station; 35 miles west of Moorilyanna Native Well. [A common flower all through the country.] *Helipterum Charsleyae*, F. v. M. Forty miles west of Oodnadatta and Wantapella Swamp. [Found plentifully till granite country was entered; it then disappeared] *H. floribundum*, DC. Everard Range; Officer Creek. [A very common plant; growing in great masses in many localities; found everywhere.] *H. Fitzgibbonii*, F. v. M. East of Everard Range. [Often met with in the vicinity of the Everard Range; growing closely to the ground.] *H. pterochaetum*, Benth. Indulkana Springs and 15 miles west thereof; Glen Ferdinand. [Found in many places, but not plentiful.] *H. stipitatum*, F. v. M. Between Moorilyanna Native Well and Musgrave Ranges; Everard Range. [Very plentiful in places, turning the sand into a cloth of gold, they grew so thickly.] *H. strictum*, Benth. Fifty miles west of Oodnadatta and 50 miles west of Todmorden Station; Lambinna Soakage. [Plentiful; varies much in size according to the amount of moisture.] *H. Tietkensii*, F. v. M. Between Moorilyanna Native Well and Everard Range; Glen Ferdinand; Indulkana Creek. Only young plants (1/8/14), much resembling *Gnaphalium luteo-album*. [Growing in colonies, with many miles between each colony.] *Waitzia corymbosa*, Wendl. Between Moorilyanna Native Well and Everard Range. [Not a common flower; very striking, with its deep-orange colour amongst the sombre mulga.] *Gnaphalium japonicum*, Thunb. Everard Range. [Great quantities of this plant grew in places amongst the ranges, giving the landscape a silvery sheen.] *Senecio Gregorii*, F. v. M. Fifty miles west of Oodnadatta; Officer Creek. [This was a common flower all through the country.] *S. magnificus*, F. v. M. Mount Carmeena and Glen Ferdinand. [This plant grew very luxuriantly in some places; at Mount Carmeena it reached 5 feet 6 inches, with large heads of flowers.]

DESCRIPTION OF PLATES.

Plate LXIX.

Toxanthus Whitei, n. sp. 1, flower. 2, two of the involucral bracts.

Pterigeron cylindriceps. n. sp. 3, style. 4 and 5, outermost and innermost involucral bracts. 6, outer flower.

Plate LXX.

Menkea hispidula, n. sp. 1, replum and seeds. 2, ovary. 3, flower. 4, petal. 5, stamen.

Triodia aristata, n. sp. 6, flowering glume, with that of *T. irritans* for purposes of comparison. 7, spikelet.

Nicotiana suaveolens, Lehm., n. var. *excelsior*. 8, calyx and capsule. 9, seed.

ABSTRACT OF PROCEEDINGS

OF THE

Royal Society of South Australia

(Incorporated)

FOR 1914-15.

ORDINARY MEETING, NOVEMBER 12, 1914.

THE PRESIDENT (J. C. Verco, M.D., F.R.C.S.) in the chair.

THE HON. SECRETARY read a protest against the destruction of Louvain by the German army, signed by representatives of Universities, Colleges, Academies, Learned Societies, Libraries, and Museums in the United Kingdom, and a letter requesting the co-operation of this Society, and reported that by direction of the Council a similar protest had been signed by the President and Secretary, and forwarded to the Government for transmission to the German Imperial Government and to the Hague Court.—*Resolved*, "That the action of the Council be endorsed."

Mr. S. DIXON moved, Dr. PULLEINE seconded, "That there be recorded on the minutes a vote of thanks to the Legislative Council for rejecting the Bill for The Animals' Protection Amendment Act." Mr. W. RUTT moved and Mr. W. HOWCHIN seconded an amendment, "That the Royal Society of South Australia (Incorporated) records its gratification at the rejection of the Bill for The Animals Protection Amendment Act." The amendment was carried.

Professor KERR GRANT showed a small lantern, with projection, electric-arc lamp, and translucent screen, for use in illustrating papers to small audiences, purchased by direction of the Council for the use of the Society and its Sections.

A letter was read from the Royal Zoological and Acclimatisation Society of Victoria *re* introduction of a Bill prohibiting the possession of the feathers of certain scheduled birds. This was referred to the Council for consideration and action.

EXHIBITS.—Dr. PULLEINE exhibited a lemon-shaped object, supposed to be carved from the head of a *Tridachna*, and used as a sorcerer's stone in the Solomon Islands; also some live spiders *(Gasteracanthae)* from Talia, Eyre Peninsula. Mr. A. M. LEA exhibited a drawer of cockchafer beetles, including a bright-green species that had recently appeared in several South Australian orchards, and had been doing serious injury to the same. Mr. H. H. D. GRIFFITH exhibited a small living snake, recently captured at Brighton. Mr. A. G. **Edquist** exhibited two ants, one of which he had found carrying the other during a migration from one nest to another.

Paper.—"South Australian Holothuroidea, with descriptions of New Species," by E. C. **Joshua** and E. **Creed** (communicated by Dr. E. C. Stirling, C.M.G., F.G.S.).

ORDINARY MEETING, APRIL 8, 1915.

The President (J. C. Verco, M.D., F.R.C.S.) in the chair.

President's Report.—**The President** reported the return of the Hon. Treasurer (Mr. W. B. Poole) from his vacation in Europe; also the publication of the narrative of the expedition of our Fellow, Sir Douglas Mawson, to Antarctica; also the death of Mr. T. R. Scarfe, who, by his anonymous gift of £1,000 to the Endowment Fund of the Society, had rendered valuable aid to its work; also his own appointment, as President of this Society, upon the recently constituted Board of Visitors to the Adelaide Observatory. He also drew attention to an album of photographs of South Australian orchids, prepared from drawings by our Hon. Fellow, J. G. O. Tepper, F.L.S.

He then vacated the chair, which was taken by Professor E. H. Rennie, M.A., D.Sc., Vice-President.

Mr. A. M. **Lea** drew attention to the republication, without acknowledgment, in the Transactions of another Society, of nine plates already published in this Society's Transactions. *Resolved*, "That the matter be referred to the Council."

Exhibits.—Captain S. A. **White** exhibited fulgurites from his estate at Fulham, taken from the sandhills 20 feet below the original natural surface. Mr. **Howchin** remarked that fulgurites, though rare in southern Australia, were more frequent in New South Wales and in Central Australia, and that the alkaline element in the sand provided the flux necessary for fusion. Mr. J. G. O. **Tepper** believed that the lightning followed the deep roots of sedges to the underlying water. Captain **White** also exhibited two small tits (*Acanthiza marianae*, n. sp.) from the Everard Range.

Papers.—"A Geological Sketch-Map, with Descriptive Notes on the Upper and Lower Torrens-Limestones in the Type District," by **Walter Howchin**, F.G.S. "Circum-elongation Observations for Azimuth," by Professor R. W. **Chapman**, M.A., B.C.E. "The Haematozoa of Australian Birds, No. 3," by J. **Burton Cleland**, M.D., Ch.M. "Notes on Australian Eumolpides (Coleoptera Chrysomelidae), with Descriptions of New Species," by **Arthur** M. **Lea**, F.E.S. "An Insect-catching Grass (*Cenchrus australis*, R. Br.)," by **Arthur** M. **Lea**, F.E.S. "Synonymic Notes on a Recent Catalogue of Cicadidae in the South Australian Museum," by HOWARD ASHTON (communicated by A. M. Lea, F.E.S.). "A Further Comparison of the Sizes of the Red Cells of some Australian Vertebrates," by J. BURTON CLELAND, M.D., Ch.M. "Notes on the Amycterides in the South Australian Museum, with Descriptions of New Species, Part II.," by EUSTACE W. FERGUSON, M.B., Ch.M.

ORDINARY MEETING, MAY 13, 1915.

THE PRESIDENT (J. C. Verco, M.D., F.R.C.S.) in the chair.

With reference to the republication without acknowledgment of plates already published in the Society's Transactions, the Council reported as follows:—"That the Council recommend that no action be taken in the present case; that a sub-committee, consisting of the President, the Editor, Prof. Chapman, and the Hon. Secretary, consider By-law Section III., and report to the Council what, if any, alterations in the same are advisable."

NOMINATION.—D. F. Laurie, Department of Agriculture, was nominated as a Fellow.

EXHIBITS.—Mr. E. R. WAITE exhibited casts of a shark and a snake, the former in plaster and the latter in gelatine containing some sawdust. He had introduced the practice of using painted casts in lieu of stuffed specimens twenty years ago in Sydney, plaster being used where rigidity is needed and gelatine where flexibility is desirable, so that the specimens may be placed in natural positions. He had been obliged to modify the gelatine formula to cope with the extremes of temperature in Adelaide. Mr. A. M. LEA showed living specimens and pupa cases of *Papilio anactus* from the experimental farm at Berri, this being its first record as South Australian; also a beautiful tiger beetle from Adelaide, which fed after dark upon flies, consuming the hard as well as the soft parts; also the larva of a praying mantis; also a majority of the insects collected by Captain S. A. White on his recent trip to the Everard and Musgrave Ranges. Mr. EDWIN ASHBY exhibited a moth of an unknown species; also a very large and perfect specimen of the rare shell *Voluta bednalli*; also the following birds from near Pine Creek, Northern Territory, with related species from other localities for comparison, *viz.*:—*Seisura inquieta nana*, Gould (Little Restless Fly-catcher); *Cissomela pectoralis*, Gould (Banded Honey-eater), a series showing all steps of plumage from the immature cinnamon-coloured to the adult black-and-white; *Conopophila rufugularis*, Gould (Red-throated Honey-eater), *Stigmatops indistincta media*, Mathews (Wyndham least Honey-eater);

Dulciornis alisteri mayi, nov. sp. (Northern Territory Grassbird); *Microphilemon orientalis sordidus*, Gould (Little Friarbird); *Pardalotus melanocephalus melvillensis*, Mathews (Orange-rumped Pardalot); *Cracticus nigrogularis picatus*, Gould (Pied Butcher-bird); *Psephotus dissimilis*, Collet (Black-hooded Parrot), which nests in the tall spire-like nests of termites. Captain S. A. White exhibited several bezoars, eight from the paunch of a wether, one large one from a sheep, one from a young cow, which was soft and fibrous inside, with a hard, shiny coating; and one of medium size, soft and fibrous, from the stomach of a sheep. Also three birds, *viz.*:—*Upupa africans* (Crested Hoopoe), from near Colesberg, Cape Colony, but rarely seen in that district; it hunts on the ground for insects, which form its entire food; its flight is low and undulating, and its call "Hoop, hoop, hoop"; *Geocolaptes olivaceus* (Ground Hopper), which, although a true woodpecker, has adapted itself to a treeless country, using its stiff and spine-like tail feathers as an aid in hopping up perpendicular rocks; its cry is very harsh; it congregates in small parties in the winter, then pairs off and nests in holes bored in a bank or between rocks, laying a pure white round egg. *Pezoporus terrestris* (Ground Parrot), from Mallacoota Inlet, Victoria: now extremely rare, although very numerous in the Adelaide plains about 1860-70; it is closely allied in habits, colour, and structure to *Geopsettacus occidentalis* (Night Parrot), now almost extinct, which, however, is found in the dry interior, while the Ground Parrot inhabits swampy country. Mr. A. R. Riddle showed various formes of gypsum from Yorke Peninsula, including simple and twin crystals from the mud under the salt lakes; seed gypsum, being small weathered crystals found in large banks; and solid gypsum from continuous horizontal beds underlying the surface soil; also a calcite breccia formed in rock fissures, and washed up on the beach at Marino.

Papers.—"On the Occurrence in South Australia of Two Previously Unrecorded Ferns (Filices), with Notes on their Probable Origin," by Edwin Ashby, M.O.B.U. In the discussion which followed, transport of the spores by wind or birds was suggested as another possible origin. "Additions to the Flora of South Australia, No. 8," by J. M. Black. "On Two New Species of *Leucopogon*," by Edwin Cheel, Botanical Assistant, National Herbarium, Sydney (communicated by J. H. Maiden, F.L.S., F.C.S.).

ORDINARY MEETING, JUNE 10, 1915.

The President (J. C. Verco, M.D., F.R.C.S.) in the chair.

Nomination.--Alan Rowe, 10, Boskenna Avenue, Norwood, was nominated as a Fellow.

Election.—D. F. Laurie, Department of Agriculture, was elected a Fellow.

Exhibits.—Mr. W. **Howchin**, F.G.S., exhibited a group of pseudo-fossils, inorganic objects that have taken the form of certain fossils, and have been mistaken for such. (1) A fragment of limestone from Flinders Range, uniformly covered with small pittings that resemble a perforate coral. It was not a coral, the pittings being caused by a small circular lichen that had eaten its way into the stone. (2) A lenticle in a fine-grained biotite schist, which in form suggested a bivalve shell *(Unio)*. It was not a shell, but was formed by local segregation under pressure. (3) A supposed fragment of a reptilian jaw with two teeth *in situ*, received, together with the preceding, from Kalgoorlie, Western Australia. It was not of organic origin, but consisted of siliceous slate carrying two elongated nodules of the same material, set side by side. (4) A supposed fossilized fir cone, picked up under a group of fir trees growing in the ground of Holy Trinity Church, North Terrace, over twenty years ago. The specimen was only a cast in hydraulic cement, probably made in sport by some humorous workman. Dr. **Pulleine** showed a lump of cork-like bark of a species of *Ficus*, containing the nest of a trap-door spider formed in a shallow depression in the bark. As the bark contained several knots of similar appearance, the nest was well concealed. The specimen came from Sámarai, Papua. Captain S. A. **White** showed a fork of *Daphnandra micrantha*, Benth., a tree which grows up to over three feet in diameter in the coastal scrubs of New South Wales, and which sheds its limbs as other trees do their leaves. The peculiar socket-joints were first recorded by S. W. Jackson in 1911. Also a number of the ejecta of the Marked Owl *(Tyto alba)*, from Fulham. Each lump of the ejected indigestible food contained the skull of a bird, usually a sparrow, occasionally a starling, but never a native bird. The indigenous birds apparently concealed themselves from their natural foe, while the imported birds became its victims. The destruction of these owls was therefore a great mistake. Mr. A. M. **Lea** exhibited a drawer of insects recently obtained from Mr. Horace W. Brown, mostly from the Cue district of Western Australia, including some very showy beetles and grasshoppers, and a minute beetle taken from an ants' nest. Mr. A. R. **Riddle** showed a pseudo-fossil mushroom. These fungi, which are found in many sandy districts, exude, when living, a sticky substance, which causes the sand to become cemented to them in a thick mass. They are popularly known as "stony fungus."

Papers.—"The Lepidoptera of Broken Hill, New South Wales, Part 1," by Oswald B. Lower, F.Z.S., F.E.S. "A Supposed Incidental Occurrence of a Sucker Fish (*Echeneis australis*, Bennett) in South Australian Waters," by Edgar R. Waite, F.L.S. The discussion on the latter was postponed until the next meeting.

Ordinary Meeting, July 8, 1915.

The President (J. C. Verco, M.D., F.R.C.S.) in the chair.

Election.—Alan Rowe, journalist, 10, Boskenna Avenue, Norwood, was elected a Fellow.

Professor W. H. Bragg.—The President referred to the work done by Professor Bragg and his son, Mr. W. L. Bragg, in connection with molecular physics. Professor Bragg was from 1886 to 1910 a Fellow of this Society, and is now an Honorary Fellow. Their joint work has been recognized by the Colombia University, New York, by the presentation to them of the Barnard Gold Medal, awarded once in five years for discoveries in physical or astronomical science.

Exhibits.—Dr. R. S. Rogers exhibited a growing orchid (*Pterostylis concinna*, Br.), said to exist in South Australia, but of which he had never seen a specimen collected in this State. The one shown was found in Victoria. Professor Osborn showed again the bezoars from the paunches of sheep and a cow, exhibited by Captain S. A. White on May 13. He had critically examined them, and only one was found to be composed of hair. The others were of two types, one consisting of very loose fibrous material, which proved to be lignified vegetable matter, and the other of similar material mixed with a considerable amount of sandy clay. Captain S. A. White exhibited the following birds, referring shortly to their habits:—*Promirops cafer* (Cape Long-tailed Sugar-bird), from South Africa; *Anthobaphis violaceae* (Orange-breasted Sunbird), from French Hoek, Hottento-Holland Mountains, South Africa; *Nectarinia famosa* (Malachite Sunbird), from Sea-Cow River, South Africa; *Cimyris kirki* (Kirk's Sunbird), from the island of Lamu, East Africa; *Cimyris gutturalis* (Scarlet-chested Sunbird), from the foot of Mount Kilamanjaro, Central Africa; *Cimyris leucogueler* (White-breasted Sunbird), from Somaliland; and one not identified, taken near the caravan route to Lake Nyanza, 100 miles from Pomba Bay, Central Africa. Also a stone nest-egg, which had been swallowed by, and had caused the death of, three brown snakes. Also a shell, brought up in the net of the trawler "Endeavour" off the north coast of Queensland, from a depth of fifty fathoms. This was pronounced by the President to be a young *Pleuronectes japonica*, frequently found of a much larger size in deep water south of Albany, Western Australia. Mr. A. M. **Lea** showed two cases of large and beautiful butterflies and moths from Northern Queensland. Also a Marked Owl *(Tyto alba)* and its ejecta, shown by Captain White at the last meeting. Upon careful examination these proved that the bird consumed, not only sparrows and starlings, but in still larger numbers mice, as well as bats, frogs, and jew lizards. Steps were being taken to make widely known the value of this bird to orchardists and agriculturists. Mr. J. M. **Black** exhibited *Xantherium canadense*, Milt., a noxious burr found near Renmark, and now spreading rapidly down the Murray Valley. Mr. A. G. **Edquist** showed some photographs of lightning flashes. Owing to a slight movement of the camera they showed clearly the phenomenon of multiple flashes, the main discharge being followed by several residual discharges. in the identical irregular path of the first. They also showed in some cases the reversal from a positive to a negative picture, caused by over-exposure.

Paper.—Mr. E. R. **Waite**, F.L.S., read the paper, laid on the table at the last meeting, on "The Supposed Incidental Occurrence of a Sucker Fish *(Remilegia australis)* in South Australian Waters," and exhibited the fish, a cast of the same, and the mould from which the cast was prepared. This animal is used by the aborigines in Torres Straits for fishing by attaching a string to its tail.

ORDINARY MEETING, AUGUST 12, 1915.

The President (J. C. Verco, M.D., F.R.C.S.) in the chair.

Late W. T. Bednall.—**The President** referred sympathetically to the death of Mr. W. T. Bednall, who was from 1893 to 1903 a Fellow of the Society, and who had done good work in Malacology.

J. H. Maiden.—He also congratulated Mr. J. H. Maiden, F.L.S., F.C.S., upon the receipt by him of the Linnean Medal of the Linnean Society of London.

Paper.—"A List of Foraminifera and other Organic Remains obtained from Two Borings on the Lilydale Sheep Station," by **Walter Howchin**, F.G.S.

PUBLIC LECTURE, AUGUST 12, 1915.

The President (J. C. Verco, M.D., F.R.C.S.) in the chair.

A public lecture on "The D'Entrecasteaux and Louisiade Archipelago, South-eastern Papua," was given by Mr. E. R. **Stanley**, Government Geologist, Papua. The lecture was illustrated by lantern slides and specimens of native clothing and implements.

ORDINARY MEETING, SEPTEMBER 9, 1915.

WALTER HOWCHIN, F.G.S., Member of Council, in the chair.

NOMINATION. — Alan P. Dodd, Kuranda, Northern Queensland, was nominated as a Fellow.

EXHIBITS.—Mr. EDWIN ASHBY exhibited the following birds, collected by himself on June 12 last, at Woodford, in the Blue Mountains, New South Wales:—*Pycnoptilus f. floccosus*, Gld. (Pilot Bird); a species keeping to the deep gullies, running about amongst the ferns like a mouse, and seldom using its wings. *Pachycephala p. pectoralis*, Lath. (White-throated Thickhead); no males being seen, it is just possible that this species in winter keeps lower down the range. *Eopsaltria a. australis*, White (Yellow-breasted Robin); these lovely birds, with their brilliant yellow breasts, were very numerous and tame, especially on the tops of the ridges, where it was more open. *Origma solitaria*, Lewin (Rock Warbler); several of these interesting little birds were seen running over the rocks; they are confined to New South Wales. *Acanthorista t. tenuirostris*, Lath. (Spinebill); the commonest birds in the locality, gathering honey by means of their long bills from the tubular flowers of *Epacris* and *Styphelias;* they have a very sweet song; for purpose of comparison specimens of the various subspecies from Tasmania, Victoria, South Australia, and Western Australia were shown; also *Acanthiza pusilla* and *Acanthiza lineata* from the same locality. He also exhibited two species of ferns in pots, *viz.*, *Ophioglossum lusitanicum*, not *vulgatum* as recorded in Tate's handbook; the frond with fructification resembles the tongue of a serpent, whence its name, "Adder's Tongue"; the other was an allied species, *Botrychium ternatum* (Moon-wort), from near Sydney. Professor OSBORN exhibited living specimens of the fern *Ophioglossum lusitanicum*, collected at Mount Breckan, Victor Harbour, and drew attention to its method of vegetative reproduction, as shown in a series of specimens with the root buds in various stages. Dr. PULLEINE showed benams (polished axes of greenstone used in the purchase of canoes), adzes of *Tridachna* shell, and stone club-heads from Papua; a primitive stone axe from the Darling district; a supposed axe of quartzite from near Petersburg, South Australia; a late neolithic axe from Sweden; a stone axe from lake dwelling, Zurich; a small axe from the Amazon district; a tiny axe or chisel from Jena, Germany; and one of nephrite from New Zealand, worn as an earring when not in use. Mr. A. P. RIDDLE showed a so-called "coal apple" from the Burwood seam of the Newcastle collieries, New South Wales, stated by Mr. HOWCHIN to be a segregation of a hydro-carbon variety of coal, found in fine-grained homogeneous seams, and known as "cat's head" in the North of England; also a series of chitons from different depths of water near South Head, Sydney, each species collected in shallower water than usual; he suggested that the modification of *habitat* might be due to the fact that the specimens were collected in winter. Captain S. A. **White** showed the following African game birds:—Black-bellied Bustard *(Lissotis melanogaster)*; Blue Bustard *(Trachelotis caerulescens)*, called by the Dutch settlers "Knoshaan," meaning "scolding cock," because these birds, when flushed, fly off uttering a harsh note, resembling the words "kuk-pa-wow" repeated several times; Red-winged Partridge *(Francolinus levaillanti)*, which lie very close, and when flushed usually fly a long distance, almost always out of sight, before they settle; Grey-winged Partridge *(Francolnus africanis)*, a bird generally found in the mountains in coveys of from a dozen to twenty birds; Sand Grouse; Blue or Rock Pigeon *(Columba phaeonota)*, resembling *C. livia*, which inhabits the coast of Britain and the islands also of North Africa, breeding in the crevices of rocks, as it also breeds in the rocks and caverns facing the sea as far south as Cape Colony, and could, no doubt, like the European bird, be easily domesticated. Lemon-collared Turtle Dove *(Turtur capicola)*, found all over southern Africa; Senegal Turtle Dove *(Turtur senegalensis)*, whose sweet cooing is at times like a musical laugh, from which it is often called the "Laughing Dove"; Long-tailed Dove *(Oena capensis)*, which frequents the cattle kraals in search of corn, and is thought much of by the natives.

Papers.—"Fungi New to South Australia," by Professor **Osborn**, M.Sc.; "The Possibility of a Continuation of Adverse Seasons on Land having a Deterrent Influence on Ocean Life," by W. G. **Randall** (communicated by Walter Rutt).

ANNUAL MEETING, OCTOBER 14, 1915.

The President (J. C. Verco, M.D., F.R.C.S.) in the chair.

Election.—Alan P. Dodd, Kuranda, Northern Queensland, was elected a Fellow.

The Annual Report and Balance-sheet were read and adopted.

By-law, Section III., as amended by the Council, was submitted for approval, and was referred back to the Council for reconsideration of sundry points.

Election of Officers.—*President*, J. C. Verco, M.D., F.R.C.S.; *Vice-Presidents*, Professor E. H. Rennie, M.A., D.Sc., F.C.S., and Lieut.-Colonel R. S. Rogers, M.A., M.D.; *Hon. Treasurer*, W. B. Poole; *Members of Council*, Professor

T. G. B. Osborn, M.Sc., and Samuel Dixon; *Hon. Auditors*, W. L. Ware, J.P., and Howard Whitbread.

PAPERS.—"Fishes of the South Australian Government Trawling Cruise, 1914," by EDGAR R. WAITE, F.L.S., and ALLAN R. McCULLOCH; "A Revision of the Genus *Aracana* and its Allies," by ALLAN R. McCULLOCH and EDGAR R. WAITE, F.L.S.; "Australian Hymenoptera Proctotrypoidea, No. 3," by ALAN P. DODD; "Natural History Notes gathered on an Expedition to the Everard and Musgrave Ranges," by Captain S. A. WHITE, M.B.O.U., and OTHERS; "The Natives of Mailu, Papua: Preliminary Results of the Robert Mond Research Work in British New Guinea," by B. MALINOWSKI, Ph.D. (Cracow) (communicated by Dr. E. C. Stirling, C.M.G., F.R.S.).

EXHIBITS.—Mr. E. R. WAITE, F.L.S., exhibited a long-tailed mouse with a pouch on the throat, a death adder, and a young banded-snake, all illustrating Captain White's paper. Mr. A. M. LEA showed a tray of Australian Cicadidae, and a collection of insects from the Daly River, Northern Territory, trapped by a plant apparently allied to the *Drosera*.

ANNUAL REPORT, 1914-15.

The Council is pleased to be able to again present a favourable report upon the year's work of the Society. The annual volume of Transactions will contain papers of varied interest, including further contributions to Geology by Mr. Walter Howchin, to Entomology by Mr. A. M. Lea, and to Ichthyology by Mr. E. R. Waite, and the first of a series of papers on the Lepidoptera of Broken Hill by Mr. O. B. Lower. A valuable feature will be a series of papers embodying the scientific results of Captain S. A. White's observations while attached as a representative of this Society to the expedition led by Mr. R. L. Jack, Assistant Government Geologist, to the Musgrave and Everard Ranges, to which reference was made in the last annual report. A lengthy paper by Dr. Malinowski, on "The Natives of Mailu," being the preliminary results of the Robert Mond Research Work in British New Guinea, is an important contribution to our knowledge of Papuan ethnology.

The evening meetings have also afforded opportunity for the exhibition of a large variety of objects of scientific interest, and on one evening a public lecture on the D'Entrecasteaux and Louisiade Archepelago, illustrated by numerous lantern slides, was given by Mr. E. R. Stanley, Government Geologist, Papua.

The promised Bill for the preservation of Native Fauna and Flora in the western portion of Kangaroo Island has been still further deferred in consequence of the economic stress due to the late drought and the present deplorable war. It is greatly to be feared that this continued postponement will prove fatal to the Society's efforts to prevent the entire destruction of many interesting forms of life.

The Government, having established a Board of Visitors to the Adelaide Observatory, has appointed the President of this Society as one of its members.

Three of our Honorary Fellows have during the year received recognition of the value of their work from other scientific bodies. Professor W. H. Bragg, now of the University College, London, who commenced his investigations into the phenomena of radio-activity while on the staff of the University of Adelaide, has, in conjunction with his son, been awarded the Barnard Gold Medal of the Colombia University, New York; Mr. J. H. Maiden has been honoured with the Linnean Medal of the Linnean Society of London: and Professor David has received the Wollaston Medal, the highest award in the gift of the Geological Society of London, for his important contributions to the geology of Australia and Antarctica.

The Library has increased considerably during the year, principally through exchange of our publications for those of other bodies, but to some extent through free donations, including a set of fifty-nine volumes of the "Actes de la Société Linnéenne d'Histoire Naturelle de Bordeaux," presented by our President, and one folio publication of special interest to Australians, which was presented by the Royal Society of London. This is "Illustrations of Australian Plants, collected in 1770 by Banks and Solander during Captain Cook's voyage round the world," now reproduced for the first time. The binding of the Library has been continued and is still in hand. For this the Society has gratefully to thank the President for the financial aid already given and promised.

The question of the copyright of the Society's publications, which was somewhat indefinite, has been considered by the Council, who has repealed Section III. of the By-laws and replaced it by another, which, in accordance with Rule 44, will be presented to this meeting for approval.

The present membership of the Society comprises 10 Honorary Fellows, 6 Corresponding Members, 77 Fellows, and one Associate.

Jos. C. Verco, *President.*
Walter Rutt, *Hon. Secretary.*

September 30, 1915.

ROYAL SOCIETY OF SOUTH AUSTRALIA (INCORPORATED).

REVENUE AND EXPENDITURE FOR 1914-15.

	£	s.	d.	£	s.	d.
To Balance October 1, 1914				221	4	6
,, Subscriptions—						
Royal Society	80	1	0			
Field Naturalists' Section ...	20	15	0			
Malacological Section ...	1	2	6			
				101	18	6
,, Grants from Government—						
On Subscriptions	79	4	0			
For Printing Reports and Scientific Investigations ...	150	0	0			
				229	4	0
,, From other Societies for use of room ...				5	1	0
,, Sale of Publications				5	1	3
,, Savings Bank Interest	3	19	9			
,, Interest from Endowment Fund	108	7	8			
				112	7	5
,, Donations—						
Dr. Verco	100	0	0			
Captain White	13	0	0			
				113	0	0

	£	s.	d.	£	s.	d.
By Transactions—						
Printing	151	16	5			
Illustrating	47	4	0			
Publishing	11	19	2			
				210	19	7
,, Grant to Field Naturalists' Section ...				20	0	0
,, Library—						
Librarian, Cataloguing, Receiving, and Issuing	70	7	9			
Binding	106	3	6			
Purchase and Carriage of Books	2	2	8			
				178	13	11
,, Sundries—						
Furnishing (Book Shelves and Lantern)	36	5	6			
Cleaning and Lighting ...	8	0	7			
Printing, Postages, and Stationery	12	7	9			
Advertising	4	1	0			
Insurance	2	10	7			
Expenses Public Lectures ...	1	5	4			
				64	10	9

				£787	16	8

,, Balance, September 30, 1915—						
Savings Bank of S.A.	234	7	2			
Bank of Australasia	77	8	9			
Cash in hand	1	16	6			
				313	12	5
				£787	16	8

Audited and found to be correct—

W. L. Ware,
Howard Whitbread, Hon. Auditors.

Adelaide, October 4, 1915.

W. B. **Poole**, *Hon. Treasurer.*

ENDOWMENT FUND.

(Capital, £2,474 0s. 10d.)

	£	s.	d.	£	s.	d.
1914—October 1.						
To Balance				2,488	5	4
,, Interest on Government Stock ...	16	17	6			
,, Interest on Government Stock ...	75	0	0			
,, Savings Bank Interest	2	5	8			
				94	3	2
				£2,582	8	6

	£	s.	d.	£	s.	d.
1915—September 30.						
By Transfer to Revenue Account				108	7	8
,, £2,000 S.A. Government 3¾% Stock at cost	1,997	10	0			
,, £450 S.A. Government 3¾% Stock at cost	432	0	0			
,, Savings Bank Account	44	10	10			
				2,474	0	10
				£2,582	8	6

Audited and found to be correct—

W. L. Ware,
Howard Whitbread, Hon. Auditors.

Adelaide, October 4, 1915.

W. B. **Poole**, *Hon. Treasurer.*

DONATIONS TO THE LIBRARY

FOR THE YEAR ENDING SEPTEMBER 30, 1915.

TRANSACTIONS, JOURNALS, REPORTS, ETC.,

presented by the respective governments, societies, and editors.

AUSTRALIA.

AUSTRALIA. *Bureau of Census and Statistics.* Census of the Commonwealth, vol. 2-3. Melb. 1911.

——— ——— Official year book, no. 8. Melb. 1915.

——— *Bureau of Meteorology.* Monthly report, vol. 3, no. 2-8. Melb. 1914.

——— ——— Results of rainfall observations made in Queensland up to 1913. Melb. 1914.

——— *Department of Trade and Customs. Fisheries.* Zoological results of the fishing experiments carried out by F.I.S. "Endeavour," vol. 2, pt. 5; 3, pt. 1-4, and suppl. Melb. 1914-15.

——— Federal handbook. Melb. 1914.

AUSTRALASIAN INSTITUTE OF MINING ENGINEERS. Proceedings, n.s., no. 6-18, and suppl. Melb. 1912-15.

NORTHERN TERRITORY. Bulletin, no. 11. Melb. 1915.

NEW SOUTH WALES.

AUSTRALIAN MUSEUM. Records, vol. 10, no. 9-10. Syd. 1914.

——— Report of the trustees, 1914. Syd.

——— Special catalogue, vol. 4, pt. 5. Syd. 1914.

LINNEAN SOCIETY OF NEW SOUTH WALES. Abstract of proceedings, no. 323-331. Syd. 1914-15.

——— Proceedings, vol. 39, pt. 3-4; 40, pt. 1-2. Syd. 1914-15.

MAIDEN, J. H. Critical revision of the genus eucalyptus, pt. 22-23. Syd. 1914-15.

——— Forest flora of New South Wales, vol. 6, pt. 5. Syd 1914.

NATURALISTS' SOCIETY OF NEW SOUTH WALES. Journal: Australian Naturalist, vol. 3, pt. 5-7. Syd. 1915.

New South Wales. *Botanic Gardens and Government Domains.* Report, 1913. Syd. 1914.

——— *Bureau of Microbiology.* Report, 1912. Syd. 1914.

——— *Department of Agriculture.* Agricultural gazette of New South Wales, vol. 25, pt. 10-12; 26, pt. 1-9. Syd. 1914-15.

Science bulletin, no. 2, 11-12. Syd. 1914-15.

Department of Mines. Report, 1914. Syd. 1915.

Geological Survey. Geology of the Vegetable Creek tin-mining field. Syd. 1887.

——— ——— ——— Mineral resources of New South Wales, no. 19. Syd. 1915.

——— ——— ——— Records, vol. 4, pt. 1-4; 5, pt. 1, 4. Syd. 1894-98.

——— *Department of Public Health.* Report, 1913. Syd. 1915.

——— *Public Library.* Report, 1913-14. Syd. 1914.

Royal Society of New South Wales. Journal and proceedings, vol. 48, pt. 1-4. Syd. 1914-15.

Royal Zoological Society of New South Wales. Australian zoologist, vol. 1, pt. 2. Syd. 1915.

Sydney University. Calendar, 1897, 1915. Syd.

QUEENSLAND.

Queensland. *Department of Mines.* Geological survey publications, no. 227, 243, 245-249, 251. Brisb. 1914-15.

Queensland Museum. Memoirs, vol. 3-4. Brisb. 1915.

Royal Society of Queensland. Proceedings, vol. 26; index, vol 1-25. Brisb. 1914.

SOUTH AUSTRALIA.

Public Library, Museum, and Art Gallery of South Australia. Alphabetical list of serial publications. Adel. 1914.

——— Report of Board of Governors, 1913-14.

Royal Geographical Society of Australasia (South Australian Branch). Proceedings, vol. 15. Adel. 1915.

South Australia. *Department of Mines.* Review of mining operations in South Australia, no. 20-21. Adel. 1914-15.

Geological Survey. Bulletin, no. 4. Adel. 1915.

——— ——— Government Geologist's report, 1914.

——— *Woods and Forests Department.* Annual progress report, 1913-14. Adel. 1915.

SOUTH AUSTRALIAN ORNITHOLOGIST, vol. 2, pt. 1-3. Adel. 1915.

SOUTH AUSTRALIAN SCHOOL OF MINES AND INDUSTRIES. Annual report, 1914. Adel. 1915.

TASMANIA.

ROYAL SOCIETY OF TASMANIA. Papers and proceedings, 1914. Hobart, 1915.

TASMANIA. *Department of Mines. Geological Survey.* Bulletin, no. 18-20 (and maps), 22. Hobart. 1914-15.

——— ——— ——— Record, no. 2-3. Hobart. 1914-15.

——— ——— ——— Report, no. 1-6. Hobart. 1910-15.

VICTORIA.

ROYAL GEOGRAPHICAL SOCIETY OF AUSTRALASIA (VICTORIAN BRANCH). Transactions, vol. 31, pt. 1. Melb. 1914.

ROYAL SOCIETY OF VICTORIA. Proceedings, vol. 27, pt. 1-2. Melb. 1914.

VICTORIA. *Department of Agriculture.* Journal, vol. 12, pt. 10-12; 13, pt. 1-9. Melb. 1914-15.

——— *Department of Mines.* Bulletin of the Geological Survey, no. 34-35. Melb. 1914.

——— ——— Records of the Geological Survey, vol. 3, pt. 3. Melb. 1914.

——— *National Museum.* Memoirs, no. 1, 6. Melb. 1906-15.

——— Victorian year book, vol. 34. Melb. 1915.

VICTORIAN NATURALIST, vol. 31, no. 6-12; 32, no. 1-5. Melb. 1914-15.

WESTERN AUSTRALIA.

NATURAL HISTORY AND SCIENCE SOCIETY. Journal, vol. 2, pt. 1; vol. 5. Perth. 1904-14.

WESTERN AUSTRALIA. *Geological Survey.* Bulletin, no. 56-59, 61-62, 65. Perth. 1914-15.

——— *Perth Observatory.* Astrographic catalogue, vol. 1-4, 9-12. Perth. 1911-14.

Meridian observations, vol. 3-6. Perth. 1909-13.

ENGLAND.

BRITISH MUSEUM (NATURAL HISTORY). Catalogue of the Lepidoptera Phalaenae, vol. 13, and plates. Lond. 1913.

——— Catalogue of ungulate mammals, vol. 2. Lond. 1914.

——— Illustrations of Australian plants collected in 1770 during Capt. Cook's voyage round the world in H.M.S. "Endeavour," by Joseph Banks and Daniel Solander. Lond. 1900-05.

CAMBRIDGE PHILOSOPHICAL SOCIETY. Proceedings, vol. 18, pt. 1-2. Camb. 1914-15.

——— Transactions, vol. 22, no. 5-7. Camb. 1914-15.

CAMBRIDGE UNIVERSITY. Report of the Library Syndicate, 1914. Camb. 1915.

——— *Solar Physics Observatory.* Report to the Solar Physics Committee, 1914-15. Camb. 1915.

CONCHOLOGICAL SOCIETY. Journal of conchology, vol. 14, no. 8-11. Lond. 1914-15.

ENTOMOLOGICAL SOCIETY. Transactions, 1913. Lond. 1914.

GEOLOGICAL SOCIETY OF LONDON. Quarterly journal, vol. 70, pt. 3-4. Lond. 1914-15.

IMPERIAL INSTITUTE. Bulletin, vol. 12, no. 3-4; 13, no. 1-2. Lond. 1914-15.

LINNEAN SOCIETY OF LONDON. Journal: botany, no. 287-8. Lond. 1914-15.

——— Journal: zoology, no. 209, 218, 219. 1914-15.

——— List, 1914-15. Lond.

——— Proceedings, 1913-14. Lond.

——— Transactions: botany, ser. 2, vol. 8, pt. 7. 1914.

——— Transactions: zoology, ser. 2, vol. 16, pt. 4-5: 17, pt. 1. 1914.

MANCHESTER FIELD NATURALISTS' AND ARCHAEOLOGISTS' SOCIETY. Report, vol. 55. Manch. 1915.

MANCHESTER LITERARY AND PHILOSOPHICAL SOCIETY. Memoirs and proceedings, vol. 45, pt. 2; 48, pt. 2; 50, pt. 3; 58, pt. 2-3. Manch. 1901-15.

NATIONAL PHYSICAL LABORATORY. Collected Researches, vol. 11-12. Teddington. 1914-15.

——— Report, 1913-15. Teddington. 1914-15.

NORTH OF ENGLAND INSTITUTE OF MINING AND MECHANICAL ENGINEERS. Transactions, vol. 63, and report. Newcastle. 1912-13.

OXFORD UNIVERSITY PRESS. Periodical, no. 77-82. Oxf. 1914-15.

ROYAL BOTANIC GARDENS, KEW. Bulletin, 1914. Lond.

ROYAL COLONIAL INSTITUTE. United Empire, vol. 5, no. 9-12; 6, no. 1-8. Lond. 1914-15.

ROYAL GEOGRAPHICAL SOCIETY. Geographical journal, vol. 44, no. 3-6; 45, no. 1-6; 46, no. 1-2. Lond. 1914-15.

——— Yearbook and record, 1914. Lond. 1915.

ROYAL MICROSCOPICAL SOCIETY. Journal, 1914, pt. 4-6; 1915, pt. 1-4. Lond. 1914-15.

ROYAL SOCIETY. Proceedings, ser. A, no. 622-632: ser. B, no. 600-610. Lond. 1914-15.

——— Yearbook, 1915. Lond. 1915.

ROYAL SOCIETIES CLUB. [Objects, rules, list, etc.] Lond. 1914.

Solar Physics Committee. Areas of calcium flocculi on spectroheliograms, 1906-1908. Lond. 1914.

——— 1. Comparison of the spectra of Rigelian, Crucian and Alnitamian stars. 2. Discussion of the line spectrum of α Orionis. 3. Spectrum of γ Cassiopeiae. Lond. 1914.

On some of the phenomena of new stars. Lond. 1914.

Thomas, N. W. Specimens of languages from Southern Nigeria. Lond. 1914.

IRELAND.

Royal Dublin Society. Economic proceedings, vol. 2, no. 8-9. Dublin. 1914.

——— Scientific proceedings, n.s., vol. 1, pt. 2-3; 2, pt. 1-6; 3, pt. 5; 4, pt. 5-6; 14, pt. 17-23. Dublin. 1878-1914.

——— Scientific transactions, ser. 2, vol. 1, pt. 1-12, 15-19, 22; vol. 2; 3, pt. 4-6; 4-5, indices. Dublin. 1877-96.

Royal Irish Academy. Proceedings, vol. 31 (completed); vol. 32, sect. A, no. 2-4; sect. B, no. 4-6; sect. C, no. 10-16. Dublin. 1914-15.

SCOTLAND.

Geological Society of Glasgow. Transactions, vol. 15, pt. 2. Glasg. 1915.

Royal Physical Society of Edinburgh. Proceedings, vol. 19, no. 6-7. Edin. 1914-15.

Royal Society of Edinburgh. Proceedings, vol. 34, pt. 3; 35, pt. 1. Edin. 1914-15.

ARGENTINE.

Universidad Nacional de la Plata. Annuario, 1914-15.

——— Serie física, vol. 1, entr. 1-3. La Plata. 1914-15.

——— Serie matemática, vol. 1, entr. 1. 1914.

——— Serie técnica, vol. 1, entr. 1. 1915.

BELGIUM.

Observatoire Royal de Belgique. Annales astronomiques, tom. 14, fasc. 1. Brux. 1913.

Société Entomologique de Belgique. Annales, tom. 42-43, 57. Brux. 1898-1913.

Société Royal de Botanique de Belgique. Bulletin, tom. 52. Brux. 1913-14.

BRAZIL.

Instituto Oswaldo Cruz. Memorias, tom. 6, fasc. 3. Rio de Janeiro. 1914.

Observatorio Nacional do Rio de Janeiro. Annuario, anno. 31. 1915.

CANADA.

CANADA. *Department of Mines. Geological Survey Branch.* Memoir, no. 19-20, 30, 38, pt. 1-3, 39-42, 46-47, 49, 53-54, 56, 59, 61-62, 64-65, 69, 75. Ottawa. 1913-15.

——— ——— ——— Publications, no. 1359, 1441, 1459, 1467, 1476, 1482-3, 1492, 1501, 1503, 1508, 1513, 1516, 1533, 1535, 1542. Ottawa, 1913-15.

——— ——— *Mines Branch.* Bulletin, no. 9. Ottawa. 1914.

——— ——— ——— Publications, no. 203, 209, 222, 245, 279, 299, 305, 309, 320, 322, 333. Ottawa. 1913-15.

CANADIAN INSTITUTE. Transactions, vol. 10, pt. 2. Ottawa. 1915.

CANADIAN RECORD OF SCIENCE, vol. 9, no. 6-7. Montreal. 1914-15.

ROYAL SOCIETY OF CANADA. Proceedings and transactions, 3rd ser., vol. 8. Ottawa. 1914.

DENMARK.

K. DANSKE VIDENSKABERNES SELSKABS. Oversigt, 1914, no. 3-6; 1915, no. 1. Cpng. 1914-15.

——— Skrifter: nat. og math., Afd. 11, n. 4-5: Afd. 12, n. 1. Cpng. 1914.

FRANCE.

FEUILLE DES JEUNES NATURALISTES, no. 524-528. Par. 1914.

SOCIÉTÉ ENTOMOLOGIQUE DE FRANCE. Annales, vol. 83, trim. 3. Par. 1914.

——— Bulletin, 1914, no. 13-17: 1915, no. 7-12. Par.

SOCIÉTÉ LINNÉENNE DE BORDEAUX. Actes, tom. 1-59. Bordeaux. 1826-1904. *Presented by* DR. J. C. VERCO.

SOCIÉTÉ LINNÉENNE DE NORMANDIE. Bulletin, sér. 4, tom. 1. Caen. 1888.

SOCIÉTÉ DES SCIENCES NATURELLES DE L'OUEST DE LA FRANCE. Bulletin, tom. 3, trim. 3-4. Caen. 1913.

HOLLAND.

MUSÉE TEYLER. Archives, ser. 3, vol. 2. Haarlem. 1914.

TEYLER'S GODGELEERD GENOOTSCHAP. Verhandelingen, vol. 19. Haarlem. 1914.

INDIA.

INDIA. *Board of Scientific Advice.* Report, 1912-13, 1913-14. Calcutta. 1914-15.

——— *Department of Agriculture.* Memoirs: bacteriological ser., vol. 1, no. 3-5. Calcutta. 1915.

INDIA. *Department of Agriculture.* Botanical ser., vol. 6, no. 8; 7, no. 1-4. 1914-15.

——— ——— Chemical ser., vol. 3, no. 9; 4, no. 1-2. 1914-15.

——— ——— Report, 1913-14. Calcutta. 1915.

——— *Geological Survey.* Memoirs, vol. 40, pt. 1-2; 41, pt. 1; 42, pt. 1. Calcutta. 1912-14.

——— ——— Palaeontologia Indica, ser. 15, vol. 4, no. 5; n.s., vol. 5, no. 2. Calcutta. 1914-15.

——— ——— Records, vol. 44, pt. 2-4; 45, pt. 2; 46. 1914-15.

——— *Pusa Agricultural Research Institute and College.* Report, 1913-14. Calcutta. 1914.

INDIAN MUSEUM. Records, vol. 8, pt. 5-6; 10, pt. 2-3, 6. Calcutta. 1914.

——— Report, 1913-14. Calcutta. 1914.

MADRAS FISHERIES BUREAU. Bulletin 7. Madras, 1914.

ITALY.

SOCIETÀ ITALIANA DI SCIENZE NATURALI. Atti, vol. 53, fasc. 2-4; 54, fasc. 1. Pavia. 1914-15.

SOCIETÀ TOSCANA DI SCIENZE NATURALI. Atti: processi verbali, vol. 8, p. 49-89; 9, p. 243-262; 13, p. 89-122; 23, no. 3-5. Pisa. 1892-1914.

TORINO, R. UNIVERSITÀ DI. *Museo di Zoologia.* Bolletino, vol. 29. Torino. 1914.

JAPAN.

FORMOSA. *Bureau of Productive Industries.* Icones of the plants of Formosa, vol. 4. Taihoku. 1914.

IMPERIAL ACADEMY. Proceedings, vol. 1, no. 4. Tokyo. 1914.

JAPAN. *Imperial Earthquake Investigation Committee.* Bulletin, vol. 6, no. 3; 7, no. 1; 8, no. 1. Tokyo. 1914.

KYÓTO IMPERIAL UNIVERSITY. *College of Engineering* Memoirs, vol. 1, no. 1-2. Kyóto. 1914-15.

——— *College of Science.* Memoirs, vol. 1, no. 1-2. Kyóto. 1914.

TOHÔKU IMPERIAL UNIVERSITY. Science reports, 1st ser., vol. 3, no. 5-6; 4, no. 1-2; 2nd ser., vol. 2, no. 1-2. Sendai. 1914-15.

TOHÔKU MATHEMATICAL JOURNAL, vol. 6, no. 2-4; 7, no. 1-4; 8, no. 1. Sendai. 1914-15.

TOKYO IMPERIAL UNIVERSITY. *College of Science.* Journal, vol. 29, art. 1; 35, art. 8; 36, art. 5-6; 37, art. 1. Tokyo. 1914.

JAVA.

K. NATUURKUNDIGE VEREENIGING IN NEDERLANDSH-INDIË. Natuurkundig Tijdschrift, deel 73. Batavia. 1914.

NEDERLANDSH OOST-INDIË. *Hoofd-bureau Mijnwezen.* Jaarboek, 1912. Batavia. 1914.

MEXICO.

SOCIEDAD CIENTÍFICA "ANTONIO ALZATE." Memorias y revista, tom. 2; 6, no. 1-10; 7, no. 5-10; 8, no. 5-12; 18, no. 2; 19, no. 1. Mexico. 1888-1902.

NEW ZEALAND.

NEW ZEALAND. *Department of Mines.* Palaeontological bulletin, no. 2-3. Well. 1914-15.

——— *Dominion Museum.* Bulletin, no. 3-4. Well. 1911-12.

——— *Ministry for Internal Affairs.* Illustrations of the New Zealand flora, vol. 1-2. Well. 1914.

NEW ZEALAND INSTITUTE. Manual of the New Zealand coleoptera, pt. 1-2. Well. 1880-81.

——— Transactions, vol. 18, 46-47; index, vol. 1-40. Well. 1886-1915.

NORWAY.

BERGENS MUSEUM. Aarbog, 1914-15, pt. 2. 1915.

——— Aarsberetning, 1913. Bergen. 1914.

K. NORSKE VIDENSKABERS SELSKABS. Skrifter, 1913. Trondhjem. 1914.

STAVANGER MUSEUM. Aarshefte, 1913. Stavanger.

PERU.

CUERPO DE INGENIEROS DE MINAS. Boletin 81. Lima. 1915.

SOCIEDAD GEOGRAFICA DE LIMA. Boletin, tom. 29, trim. 3-4. Lima. 1914.

RUSSIA.

SOCIÉTÉ IMPÉRIALE DES NATURALISTES DE MOSCOU. Bulletin, 1913, no. 4; 1914. Moscou. 1914-15.

SWEDEN.

ENTOMOLOGISKA FÖRENINGEN I STOCKHOLM. Entomologisk Tidskrift, arg. 35. Upsala. 1914.

GEOLOGISKA FÖRENINGEN I STOCKHOLM. Förhandlingar, Bd. 36. Stockholm. 1914.

K. VITTERHETS HISTORIE OCH ANTIKVITETS AKADEMIEN. Fornvännen, 1913. Stockholm. 1914.

——— Tidskrift, vol. 20, no. 1; 21, no. 1. 1914.

REGIA SOCIETATIS SCIENTARUM UPSALIENSIS. Nova acta, ser. 4, vol. 3, fasc. 2. Upsala. 1914.

SWITZERLAND.

SOCIÉTÉ DE PHYSIQUE ET D'HISTOIRE NATURELLE. Comte rendu des séances, vol. 31. Genève. 1915.

SOCIÉTÉ VAUDOISE DES SCIENCES NATURELLES. Bulletin, no. 184. Lausanne. 1914.

UNION OF SOUTH AFRICA.

ALBANY MUSEUM. Records, vol. 3, pt. 2. Grahamstown. 1915.

DURBAN MUSEUM. Annals, vol. 1, pt. 2. 1915.

——— Report, 1914. Durban. 1915.

GEOLOGICAL SOCIETY OF SOUTH AFRICA. Transactions and proceedings, vol. 1-16; 17, p. 1-84. Johannesburg. 1895-1915.

ROYAL SOCIETY OF SOUTH AFRICA. Transactions, vol. 4, pt. 3; 5, pt. 1. Cape Town. 1915.

SOUTH AFRICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE. Journal of science, vol. 10, no. 13-14; 11, no. 1-10; 12, no. 1. Cape Town. 1914-15.

SOUTH AFRICAN MUSEUM. Annals, vol. 9, pt. 4; 10, pt. 11-12; 12, pt. 2; 13, pt. 4; 14, pt. 1; 15, pt. 1. Cape Town. 1914-15.

——— Report, 1914. Cape Town. 1915.

UNITED STATES OF AMERICA.

ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA. Proceedings, vol. 66; 67, pt. 1. Phil. 1914-15.

ACADEMY OF SCIENCE OF ST. LOUIS. Transactions, vol. 2-3; 15, no. 1. St. Louis. 1863-1905.

AMERICAN ACADEMY OF ARTS AND SCIENCES. Proceedings, vol. 50, no. 1-3. Phil. 1914.

AMERICAN GEOGRAPHICAL SOCIETY. Bulletin, vol. 45, no. 7; 46, no. 6, 9-12; 47, no. 1-8. N.Y. 1914-15.

AMERICAN MICROSCOPICAL SOCIETY. Proceedings and transactions, vol. 4-5, 7-16, 18-33. Decatur, Ill. 1882-1914.

AMERICAN MUSEUM OF NATURAL HISTORY. Anthropological papers, vol. 11, pt. 5-10; 14, pt. 1; 15, pt. 1; 16, pt. 1. N.Y. 1914-15.

——— Bulletin, vol. 25, pt. 2; 33. 1914-15.

——— Guide leaflets, no. 34, 38-42. 1911-15.

——— Journal, vol. 14, no. 6-8; 15, no. 1-5. 1914-15.

——— Memoirs, n.s., vol. 1, pt. 5. 1914.

——— Report, vol. 45-46. 1914-15.

AMERICAN PHILOSOPHICAL SOCIETY. Proceedings, no. 213-215. Phil. 1914.

ARCHAEOLOGICAL INSTITUTE OF AMERICA. American journal of archaeology, vol. 18; 19, no. 1-2. Concord, N.H. 1914-15.

——— Art and archaeology, vol. 1; 2, no. 1. 1914-15.

BOSTON SOCIETY OF NATURAL HISTORY. Memoirs, vol. 1; 2 (exc. pt. 1, no. 1); 3, no. 2-5, 8-10; 5, no. 8-9; 8, no. 1. Bost. 1866-1914.

——— Proceedings, vol. 14-19; 22, pt. 2-3; 30, pt. 3-7; 31, no. 1; 34, no. 13; 35, no. 1. 1870-1914.

BROOKLYN INSTITUTE OF ARTS AND SCIENCES. Museum quarterly, vol. 1. Brooklyn. 1914-15.

——— Science bulletin vol. 2, no. 3-4. 1914.

CALIFORNIA ACADEMY OF SCIENCES. Proceedings, 4th ser., vol. 4, p. 15-160; vol. 5, p. 1-31. San Fran. 1914.

——— Third ser.: zoology, vol. 4, no. 4-5. 1906.

CALIFORNIA. *State Mining Bureau.* Bulletin, no. 68-69, and map folio. Sacramento. 1914-15.

——— ——— Mines and mineral resources of San Diego and Imperial counties. 1914.

CALIFORNIA UNIVERSITY. Publications in American archaeology, vol. 1; 2, no. 1-4. Berkeley. 1903-05.

——— Botany, vol. 1, p. 1-140; 2, no. 14-15; 4, no. 18, index, etc.; 5, no. 1-3, 6; 6, no. 1-6. 1902-15.

——— Geology, vol. 7, no. 11-12, 21-22, index, etc.; 8, no. 2-3, 7. 1913-14.

——— Zoology, vol. 1, no. 4-7; 3, no. 12, 14; 4, no. 1-2; 6, no. 3, 6; 7, no. 3-6; 11, no. 9-11, 14; 12, no. 1-3; 13, no. 6-7; 14, no. 1. 1903-14.

——— *Agricultural Experiment Station.* Bulletin, no. 188-227, 229-241, and 77 back numbers. 1884-1913.

——— ——— Circular, no. 68-98, 100-114, and 48 back numbers. 1903-14.

——— ——— Report, 1888-1901, 1912-14. 1890-1914.

CHICAGO ACADEMY OF SCIENCES. Bulletin, vol. 1, no. 1-10; 2, no. 2, 4; 3, no. 6-10; 4, no. 1-2. Chic. 1883-1913.

——— *Natural History Survey.* Bulletin, no. 3, pt. 2; no. 5. 1902.

——— Special publication, no. 1. 1912.

CINCINNATI SOCIETY OF NATURAL HISTORY. Journal, vol. 21, no. 4. 1914.

CONNECTICUT ACADEMY OF ARTS AND SCIENCES. Memoirs, vol. 3. New Haven. 1911.

——— Transactions, vol. 1-3; 4, pt. 1-2; 5-11. 1866-1903. Presented by Yale University.

DENISON UNIVERSITY. *Scientific Laboratories.* Bulletin, vol. 17, art. 8-10. Granville, O. 1914.

FIELD MUSEUM OF NATURAL HISTORY. Anthropological ser., vol. 13, no. 2; 14, no. 1. Chic. 1914-15.

——— Botanical ser., vol. 2, no. 9-10. 1913-14.

——— Geological ser., vol. 5, no. 1. 1914.

——— Ornithological ser., vol. 1, no. 8-9. 1915.

——— Report ser., vol. 4, no. 4-5. 1914-15.

——— Zoological ser., vol. 10, no. 10-12. 1914.

FRANKLIN INSTITUTE. Journal, vol. 73-74, 124, 126-131, 133-165, 172-3, 177-9; 180, no. 1-2. Phil. 1877-1915.

HAWAIIAN ENTOMOLOGICAL SOCIETY. Proceedings, vol. 1-2; 3, no. 1-2. Honolulu. 1905-15.

ILLINOIS. *State Laboratory of Natural History.* Bulletin, vol. 10, art. 5-6. Urbana. 1914-15.

JOHNS HOPKINS UNIVERSITY. American chemical journal, vol. 39, index, etc.; 40, no. 1. General index, vol. 1-10; 21-50. Balt. 1890-1914.

——— Circular, 1904, no. 1, 4, 6; 1913, no. 10; 1914, no. 1-10; 1915, no. 1. 1904-15.

——— Studies in historical and political science, ser. 1, no. 1-12; 2, no. 1-4; 10, no. 1; 14, no. 9-10; 32, no. 2-3. Balt. 1882-1914.

KANSAS ACADEMY OF SCIENCE. Transactions, vol. 26. Topeka. 1914.

KANSAS UNIVERSITY. Bulletin: humanistic studies, vol. 1, no. 2-3. Lawrence. 1914.

——— Science bulletin, vol. 7, no. 1-17: 18, no. 1-10. Lawrence. 1913-14.

LELAND STANFORD JR. UNIVERSITY. University ser., no. 1-2, 13-18. 1908-14.

LOUISIANA STATE MUSEUM. Report, 1912-14. Baton Rouge.

MARYLAND GEOLOGICAL SURVEY. Report, vol. 1-3. Balt. 1897-99.

MINNESOTA UNIVERSITY. Annual report, vol. 1, 3, 8, 15-16, 18-24. Minneapolis. 1872-98.

——— Current problems, no. 1-4. 1913-15.

——— President's address, 1911-12.

——— Studies in biological sciences, no. 1. 1913.

——— Studies in engineering, no. 1. 1915.

——— Studies in language and literature, no. 1. 1914.

——— Studies in the social sciences. no. 4. 1915.

——— *Agricultural Experiment Station.* Bulletin, no. 122, 130, 132, 134-138, 140-141, 143-147. St. Paul. 1913-15.

——— *Minnesota Geological Survey.* Botanical studies, vol. 1-3; 4, pt. 1-3. Minneapolis. 1894-1914.

——— ——— Bulletin, no. 1, 4-5, 7-8, 10-12. 1889-1915.

MINNESOTA UNIVERSITY. *Minnesota Geological Survey.* Geology of Minnesota, final report, vol. 1-5. 1884-1900.

——— ——— Minnesota plant studies, no. 1, 3-5. 1909-13.

——— ——— Reports of the survey: botanical ser., no. 1, 3, 8-9. 1892-1912.

——— ——— Zoological ser., no. 2-5. 1895-1912.

MISSOURI BOTANICAL GARDEN. Report, vol. 1. St. Louis. 1890.

NATIONAL ACADEMY OF SCIENCES. Memoirs, vol. 12, no. 1. Wash. 1914.

——— Meteor Crater in northern central Arizona. 1909.

——— Proceedings, vol. 1, no. 1-4, 6-8. 1915.

NEW YORK ACADEMY OF SCIENCES. Annals, vol. 23, p. 145-353; 24, p. 1-443. N.Y. 1914-15.

NEW YORK PUBLIC LIBRARY. Bulletin, vol. 1; 2, no. 3-4, 11; 4, no. 9; 18, no. 9-12; 19, no. 1-6, 8. 1897-1915.

NEW YORK ZOOLOGICAL SOCIETY. Zoologica, vol. 1, no. 17-20. 1914-15.

OBERLIN COLLEGE. Laboratory bulletin, no. 2, 4-5, 7-8. Oberlin, O. 1892-97.

——— Wilson bulletin, vol. 4, no. 1-2; 6, no. 1-3, 5, 10-11, 15, 31: 26, no. 3-4; 27, no. 1-2. 1892-1915.

PHILIPPINE ISLANDS. *Philippine Library.* Bulletin, vol. 3, no. 1, 3-9. Manila. 1914-15.

PORTLAND SOCIETY OF NATURAL HISTORY. Journal, vol. 1, no. 1. Portland, Me. 1864.

——— Proceedings, vol. 1; 2, pt. 3-9; 3, pt. 1. 1862-1914.

ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH. Studies, vol. 18-20. N.Y. 1914-15.

SMITHSONIAN INSTITUTION. Annual report, 1913. Wash.

——— *Bureau of American Ethnology.* Bulletin, no. 46, 56, 58. Wash. 1914-15.

UNITED STATES. *Department of Agriculture.* Bulletin, no. 61, 105, 126, 134-5, 139, 149, 157, 166, 185. Wash. 1914-15.

——— ——— Farmers' bulletin, no 589, 597, 606, 622. 1914.

——— ——— Journal of agricultural research, vol. 2, no. 5-6; vol. 3, no. 1-5; 4, no. 1-5. 1914-15.

——— ——— North American fauna, no. 24, 35-36. 1904-14.

— Yearbook, 1902, 1912, 1914.

Bureau of Biological Survey. Bulletin, no. 33, 42, 75, 88, 90, 103. 1914.

——— *Bureau of Entomology.* Technical ser., no. 17, pt. 2; no. 27, pt. 2. 1914-15.

- *Geological Survey.* Annual report, vol. 35. 1914.

UNITED STATES. *Geological Survey.* Bulletin, no. 540-I, 543, 546-554, 556-8, 561-2, 564, 570-2, 574-7, 579, 580 A-K, 581 A-D, 583-6, 588, 590, 592, 599, 600. 1914.

——— ——— Geologic folio, 190-194. 1914.

——— ——— Topographic atlas, 74 sheets.

——— ——— Mineral resources of the United States, 1912, pt. 1-2; 1913, pt. 1, 1-12, 14-26 A, pt. 2, 1-18, 20-35. 1912-14.

——— ——— Professional paper, 76, 80-86, 90 A-H. 1913-14.

——— ——— Water-supply paper, 309, 321-330, 335-6, 339, 340 A-E, 344, 345 A-G, 346-8, 363-4, 366. 1914.

——— *Library of Congress.* Report, 1914.

UNITED STATES NATIONAL MUSEUM. Annual report, 1913-14. Wash. 1914.

——— Bulletin, no. 50, pt. 6; 71, pt. 5; 84-90. 1914-15.

——— Contributions from the National Herbarium, vol. 17, pt. 6. 1915.

——— Proceedings, vol. 46. 1914.

——— Special bulletin: American hydroids, pt. 3. 1915.

WAGNER FREE INSTITUTE OF SCIENCE OF PHILADELPHIA. Transactions, vol. 7, pt. 3. Phil. 1914.

WASHINGTON UNIVERSITY, ST. LOUIS. Studies, vol. 2, pt. 1, no. 1; vol. 2, pt. 2, no. 1. St. Louis. 1914.

YALE UNIVERSITY. Science and religion, by C. J. Keyser. New Haven. 1914.

——— Transactions of the Connecticut Academy, vol. 12-15. 1907-09.

LIST OF MEMBERS

AS EXISTING ON

SEPTEMBER 30, 1915.

Those marked with an asterisk have contributed papers published in the Society's Transactions.

Any change in address should be notified to the Secretary.

NOTE.—The publications of the Society will not be sent to those whose subscriptions are in arrears.

Date of Election.

HONORARY FELLOWS.

1910. *Bragg, W. H., M.A., F.R.S., Professor of Physics, University College, London (Fellow 1886).
1893. *Cossman, M., Rue de Maubeuge, 95, Paris.
1897. *David, T. W. Edgeworth, C.M.G., B.A., D.Sc., F.R.S., F.G.S., Professor of Geology, University of Sydney.
1890. *Etheridge, Robert, Director of the Australian Museum of New South Wales, Sydney.
1905. Gill, Thomas, I.S.O., Under-Treasurer, Adelaide.
1905. *Hedley, Chas. H., Naturalist, Australian Museum, Sydney.
1892. *Maiden, J. H., F.L.S., F.C.S., Director Botanic Gardens, Sydney, New South Wales.
1898. *Meyrick, E. T., B.A., F.R.S., F.Z.S., Tohrnhanger, Marlborough, Wilts, England.
1894. *Wilson, J. T., M.D., Ch.M., Professor of Anatomy, University of Sydney, New South Wales.
1912. *Tepper, J. G. O., F.L.S., Elizabeth Street, Norwood (Corresponding Member 1878, Fellow 1886).

CORRESPONDING MEMBERS.

1881. Bailey, F. M., F.L.S., C.M.G., Colonial Botanist, Brisbane, Queensland.
1913. *Carter, H. J., B.A., Darling Point, Sydney.
1909. *Johncock, C. F., Clare.
1893. *Stretton, W. G., Palmerston, Northern Territory.
1905. Thomson, G. M., F.L.S., Dunedin, New Zealand.
1908. *Woolnough, Walter George, D.Sc., F.G.S., Professor in Geology, University of Perth (Fellow 1902).

FELLOWS.

1895. *Ashby, Edwin, M.O.B.U., Blackwood.
1902. *Baker, W. H., F.L.S., Glen Osmond Road, Parkside.
1908. *Benson, W. Noel, B.Sc., University, Sydney.
1907. *Black, J. McConnell, 1, Brougham Place, North Adelaide.
1909. Bradley, Edgar J., C.E., Hydraulic Engineer's Department, Adelaide.
1912. *Broughton, A. C., Young Street, Parkside.

1911. Brown, Edgar J., M.B., D.Ph., 3, North Terrace.
1883. *Brown, H. Y. L., F.G.S., 286, Ward Street, North Adelaide.
1893. Brummitt, Robert, M.R.C.S., Medindie.
1906. Bundey, Miss Ellen Milne, 148, Molesworth Street, North Adelaide.
1907. *Chapman, R. W., M.A., B.C.E., Professor of Mathematics and Mechanics, University of Adelaide.
1904. Christie, W., 49, Rundle Street, Adelaide.
1910. *Clark, E. V., B.Sc., Lecturer in Electrical Engineering, University of Adelaide.
1879. *Cleland, W. L., M.B., Ch.M., J.P., Beaumont.
1895. *Cleland, John B., M.D., Government Bureau of Microbiology, Sydney, New South Wales.
1907. *Cooke, T. W., D.Sc., Lecturer, University of Adelaide.
1912. Corbin, H., B.Sc., Forest Department, Adelaide.
1914. Cornish, H. M., Coast View, Adelaide Road, Glenelg.
1914. Darroch, D. G., Australian United Paint Co., Port Adelaide.
1912. Desmond, J., Currie Street, Adelaide.
1887. *Dixon, Samuel, Bath Street, New Glenelg.
1911. Dutton, H. H., Anlaby.
1902. Edquist, A. G., Tate Terrace, Croydon.
1914. Ferguson, E. W., M.B., Ch.M., Gordon Road, Roseville, Sydney.
1911. Gillespie, H. R., Adyar, Madras Presidency, India.
1904. Gordon, David, c/o D. & W. Murray, Gawler Place, Adelaide.
1880. *Goyder, George, A.M., F.C.S., Gawler Place, Adelaide.
1910. *Grant, Kerr, M.Sc., Professor of Physics, University of Adelaide.
1904. Griffith, H., Henley Beach.
1896. Hawker, E. W., F.C.S., East Bungaree, Clare.
1913. Hendry, James, c/o A. M. Bickford & Sons, Currie Street, Adelaide.
1891. *Holtze, Maurice, I.S.O., F.L.S., F.R.G.S., F.R.H.S., Director Botanic Gardens, Adelaide.
1883. *Howchin, Walter, F.G.S., Lecturer in Geology and Palæontology, University of Adelaide.
1911. Hughes, Herbert W., Booyoolie, Gladstone.
1912. Jack, R. L., B.E., Assistant Government Geologist, Adelaide.
1893. James, Thomas, M.R.C.S., Moonta.
1910. *Johnson, E. A., M.D., M.R.C.S., 295, Pirie Street, Adelaide.
1915. Laurie, D. F., Agricultural Department, Victoria Square.
1897. *Lea, A. M., F.E.S., South Australian Museum, Adelaide.
1884. Lendon, A. A., M.D. (Lond.), M.R.C.S., Lecturer in Obstetrics, University of Adelaide, and Hon. Physician, Children's Hospital, North Adelaide.
1888. *Lower, Oswald B., F.Z.S., F.E.S. (Lond.), Broken Hill, New South Wales.
1914. Mathews, G. M., F.R.S.E., F.L.S., F.Z.S., Langley Mount, Watford, Herts, England
1905. *Mawson, Sir Douglas, D.Sc., B.E., Lecturer in Mineralogy and Petrology, University of Adelaide.
1874. Mayo, Geo. G., C.E., England.
1907. Melrose, Robert Thomson, Mount Pleasant.

1897. *Morgan, A. M., M.B., Ch.B., Angas Street, Adelaide.

1907. Muecke, Hugo C. E., Grenfell Street, Adelaide.

1913. *Osborn, T. G. B., M.Sc., Professor of Botany, University of Adelaide.

1886. Poole, W. B., Savings Bank, Adelaide.

1911. Poole, T. S., B.A., LL.B., *Register* Chambers, Grenfell Street.

1908. Pope, William, Eagle Chambers, King William Street.

1907. Pulleine, Major R. H., M.B., North-terrace, Adelaide.

1885. *Rennie, Edward H., M.A., D.Sc. (Lond.), F.C.S., Professor of Chemistry, University of Adelaide.

1913. Riddle, A. R., Yorketown, Yorke Peninsula.

1911. Roach, B. S., Education Department, Flinders Street, Adelaide.

1905. *Rogers, Lieut.-Col. R. S., M A., M.D., Flinders Street, Adelaide.

1869. *Rutt, Walter, C.E., College Park, Adelaide.

1914. Saunders, M. E., Wood Street, Millswood.

1891. Selway, W. H., Treasury, Adelaide.

1893. Simson, Augustus, Launceston, Tasmania.

1871. Smith, Robert Barr, Adelaide.

1906. Snow, Francis H., National Mutual Buildings, King William Street.

1910. *Stanley, E. R., Government Geologist, Port Moresby, Papua.

1881 *Stirling, Edward C., C.M.G., M.A., M.D., F.R.S., F.R.C.S., Professor of Physiology, University of Adelaide, Hon. Curator of Ethnology, South Australian Museum.

1907. Sweetapple, H. A., M.D., Park Terrace, Parkside.

1897. *Torr, W. G., LL.D., M.A., B.C.L., Brighton, South Australia.

1894. *Turner, A. Jefferis, M.D., F.E.S., Wickham Terrace, Brisbane, Queensland.

1878. *Verco, Joseph C., M.D. (Lond.), F.R.C.S., Lecturer on the Principles and Practice of Medicine, University of Adelaide, and Consulting Physician Adelaide Hospital and Children's Hospital.

1883. Wainwright, E. H., B.Sc. (Lond.), McLaren Vale.

1914. *Waite, E. R., F.L.S., Director South Australian Museum.

1912. Ward, Leonard Keith, B.A., B.E., Government Geologist, Adelaide.

1878. Ware, W. L., King William Street.

1859. Way, Right Hon. Sir Samuel James, Bart., P.C., D.C.L., Chief Justice and Lieutenant-Governor of South Australia, Adelaide.

1907. Webb, Noel A., Barrister, Waymouth Street, Adelaide.

1904. Whitbread, Howard, c/o A. M. Bickford & Sons, Currie Street, Adelaide.

1912. *White, Captain S. A., M.O.B.U., "Weetunga," Fulham, South Australia.

1912. *Zietz, F. R., South Australian Museum.

Associate.

1904. Robinson, Mrs. H. R., "Las Conchas," Largs Bay, South Australia.

APPENDICES.

FIELD NATURALISTS' SECTION

OF THE

Royal Society of South Australia (Incorporated).

THIRTY-SECOND ANNUAL REPORT OF THE COMMITTEE.

FOR THE YEAR ENDED SEPTEMBER 21, 1915.

Your Committee reports with gratification that this Section of the Royal Society has experienced another very successful year. The monthly meetings and the field excursions held during the period under review have been excellently attended, and members have displayed the keenest interest in the affairs of the Section.

Your Committee decided to continue again this year a winter series of popular evening lectures, to which the general public was invited. The results have been very gratifying, the total attendances being considerably over a thousand. The attendances at the excursions have likewise been most satisfactory, the average being 32. The year was opened with a membership of 111. To this number 22 new members have been added; resignations total 9, leaving us with a roll of 121. The Committee desires to express its appreciation to the gentlemen who lectured before the Society and to those who acted as leaders of the excursions held during the year.

Early in the year your Committee, realizing the value a small lantern would be to the Section if installed in the Royal Society's room, placed an application before the parent society. It is pleased to state that its request was granted and that the lantern has since proved very serviceable.

The last annual meeting was held on Tuesday, September 15, 1914, when the following officers were elected for the ensuing year:—*Chairman*, Captain S. A. White, M.B.O.U., R.A.O.U.: *Vice-Chairmen*, Mr. W. J. Kimber, Professor T.

G. B. Osborn, M.Sc.; *Hon. Treasurer*, Mr. B. B. Beck; *Hon. Librarian*, Miss I. Roberts; *Hon. Secretary*, Mr. Percival Runge; *Hon. Assistant Secretary*, Miss E. Hocking; *Committee*—Dr. R. S. Rogers, M.A., Mr. J. W. Mellor, R.A.O.U., Mr. E. H. Lock, F.R.H.S., Mrs. R. S. Rogers, Mr. W. H. Selway, Mr. R. Llewellyn, Mrs. J. F. Mellor, and Mr. A. R. Riddle; *Auditors*, Messrs. Walter D. Reed and A. W. Drummond.

The retiring president, Mr. E. H. Lock, F.R.H.S., then delivered a most instructive and interesting address on "Drama in Nature." His discourse was much appreciated by the large audience present.

On October 20, 1914, an Exhibit Evening was held, and a fine collection of material was tabled by members. Mr. A. M. Lea exhibited two cases of New Zealand insects. A New Zealand chiton, of unusual dimensions, was shown by Mrs. Mellor, while a number of mineralogical specimens were shown by Mr. P. H. E. Runge (Hon. Secretary). Mr. W. J. Kimber, with the aid of specimens, gave many interesting facts about "The Life History of the Hermit Crab," and Captain White (Chairman) laid out on the table a beautiful collection of South African birds.

April 20, 1915.—This, the first of the winter series of monthly meetings, was devoted to exhibits. Mr. R. Llewellyn exhibited a beautiful collection of cowrie shells, including many species obtained in various parts of the world. A collection of fossil shells, obtained at a depth of 400 feet during boring operations on the Adelaide plains, was exhibited by Mr. Ising. At the Chairman's request, Mr. Riddle explained the geological significance of the deposit. Mr. A. R. Riddle exhibited a collection of gypsum obtained from Yorke Peninsula. Many of these showed great variations in twinning, whilst others, which simulated true twin crystals, were simply intergrowths. The massive form from Marion Bay, as well as the granular variety or "seed gypsum," from the immense deposit at Lake Fowler, were shown. On behalf of Miss Roberts, Mr. Riddle exhibited a so-called "fossil mushroom" from Brown's Well. Far from being a fossil, the specimen was quite a present-day form known as *Laccocephalum basilapiloides*. This fungus grows in sandy soil, and by reason of its hyphae being glutinous, the sand grains become cemented together. This, together with the woody nature of the fungus, gives the "fossil"-like appearance. Captain White (Chairman) exhibited a number of South African birds, and referred to their nesting and other habits. His remarks were illustrated by a number of beautiful slides taken in South Africa. Mr. A. M. Lea, F.E.S., gave several interesting facts about a number of Australian and New Guinea insects and showed a large number of specimens. Mr. P. Runge (Hon. Secretary) also displayed a number of geological specimens from this and other Australian States. These included samples from a mineral oil bore in the South-East, among which were sharks' teeth, black sands, flints, and consolidated shell-grit. Several cut garnets, commonly termed Australian rubies, were shown by Mrs. J. F. Mellor, and their occurrence, composition, and differences from the true Oriental ruby were explained by Mr. Runge.

On May 18, 1915, the winter series of monthly lectures was inaugurated by Captain White, M.B.O.U., R.A.O.U., who before a large audience lectured upon "From Cape Town to Lomate Land with the Camera." With the aid of about 200 views, all taken by Captain White while on a big-game hunting expedition in East and Central Africa, the lecturer described much of interest concerning Cape Town, and then spoke of his journey northwards, when Port Elizabeth, Dürban, Delagoa Bay, and the interesting Portuguese town of Lorenzo Marques were visited. Mozambique, depicted by many beautiful slides, was the next port of call, and later the town of Dar-es-saalem, the principal port of the late German East African settlements, was reached. From here the journey to Zanzibar was taken, and a considerable time spent upon the island. Many beautiful views, illustrating the scenery, the fauna and flora, and the natives were shown. Mombassa and Malinda were next visited, and then the Lamu Archipelago. The travellers continued northwards to the village of Martironi, and journeyed overland through jungle and forests inhabited by big game and strange and beautiful birds, many of which were secured. On the return trip Mount Kili-wanjaro was visited, where many different races of people were encountered. Slides of these, as well as the flora and fauna of this part of the country, were shown.

On June 17, 1915, Mr. A. R. Riddle lectured before a large audience on "Salt, the Industry, and the State." Of the State's mineral resources, the production of salt had produced wealth to the extent of £346,000 in the last ten years; thus it ranked next to copper as a source of mineral wealth in South Australia. He stated that until recently the salt lagoons within a few miles of Yorketown had been responsible for nearly all the South Australian supply. At Port Augusta a company had commenced operations with the object of obtaining salt by the evaporation of sea water. With ideal natural evaporating pans, the low rainfall, and the high evaporation, the venture compared favourably with that of the Cheetham Salt Company in Victoria, which produced from

30,000 to 40,000 tons annually by this process. All the other salt-producing areas in South Australia were discussed. Mr. Riddle illustrated his lecture with a fine series of slides, which portrayed the salt and gypsum deposits, together with their associated geological features.

On July 22, 1915, an interesting lecture, illustrated by a large number of lantern slides, on the subject of "Forestry" was delivered before a large audience by Mr. Walter Gill, F.L.S. The lecturer first dealt with the economic importance of South Australian timbers, and stated that during the last few years 5,000 acres had been planted with 2,600,000 trees, mainly pines, of which 90 per cent. were alive. Hardwood required at least sixty years to mature for most purposes, whereas pines required only half that time. Planting had been carried out in Wirrabara, Kuipto, and Second Valley Forests, as well as in the South-eastern Forests of Penola, Caroline, and Mount Burr, all of which are in a highly satisfactory state of development. Extensive work had also been done in regenerating some of our native timbers, notably the stringy bark, the value of which had long been recognized. Mr. Gill illustrated his lecture by a fine series of lantern slides.

On August 19, 1915, before a large audience, Mr. L. H. Howie, by means of the episcope, showed on the screen a large number of oil and water-colour sketches of South Australian scenes, many of which were of localities visited by the Section. Over 100 views were shown and great interest was displayed in the collection.

EXCURSIONS.

The greatest number that attended an excursion was sixty and the lowest twelve, with an average attendance of thirty-two.

On September 26, 1914, the first excursion took place under the leadership of Professor T. G. B. Osborn, M.Sc. A visit was made to the Torrens Gorge, but owing to the dry conditions of the country specimens were scarce. Nevertheless, a good many interesting plants were collected, which formed the subject matter of an instructive address by the Professor.

On October 14, 1914, Barossa Reservoir was visited. Under the leadership of Mr. J. W. Mellor the members were afforded an opportunity of studying the bird life of the district. The extreme dryness of the season interfered with the usual habits of the birds, and only a limited number were met with. Those members with geological interests were entrusted to Mr. Riddle's leadership. After a good deal of country had been examined and specimens collected, Mr. Riddle discussed the neighbourhood and gave a survey of the work that had been done by Mr. Howchin and others as to the origin of the great alluvial deposits.

On October 3, 1914, the Chairman (Captain White, M.B.O.U., R.A.O.U.) invited the members to view a large collection of natural history specimens that he had brought back from the Musgrave and Everard Ranges, in the north-west of South Australia. They included a large collection of reptiles, containing many rare snakes and lizards, several specimens of mammals, land shells, birds' eggs, spiders, and insects, many of them new to science. Particular interest was attached to a collection of ants, including thirty species, of which quite twenty were new to science. The botanical collection was also large and varied, covering more than 200 species, many of which were also new discoveries. The largest division comprised a unique collection of birds' skins—some also new to science. Amongst the new finds one of the most notable was the rediscovery of *Xerophila pectoralis*, Gould's long-lost type, described in 1871 from a single specimen. A number of native weapons and utensils were also among the exhibits.

On November 24, 1914, under the leadership of Dr. W. G. Torr, assisted by Mr. W. J. Kimber, Marino was visited for the purpose of studying chitons. After collecting a number of specimens for reference, Dr. Torr spoke of the work that had been accomplished in connection with this section of the Mollusca, and remarked that chitons were found in almost every part of the world. By diagrams drawn on the sand the interesting and complicated structure of these creatures was shown. So far sixty-two species have been recorded for South Australia, and a list of these has been published by Dr. Torr in the Royal Society's Proceedings.

On December 5, 1914, the annual social outing took place at Scott Creek, Mount Lofty. A very enjoyable afternoon was spent, through the kind hospitality of Mr. E. H. Lock, F.R.H.S., who entertained members at tea.

On February 6, 1915, under the leadership of Mr. W. J. Kimber, St. Kilda Beach was visited. This locality proved of much interest, particularly as the tide was low, exposing the mangrove-fringed mud and sand flats. Mr. Kimber described to members much of the life history of the specimens discovered. A semi-fossil shelly deposit was also examined and found to contain *Columbella bidentata*, which is now rarely found in South Australia. Several species of *Capulus* were also found, including *C. violaceus*, a shell uncommon on most of our beaches.

On March 6, 1915, a dredging excursion was conducted off the Semaphore, under the leadership of Dr. R. H. Pulleine and Mr. W. J. Kimber, when many interesting forms of sea-life were secured. They included crustacea, brightly-coloured sponges and seaweed, hydromedusa, starfish, sea urchins, and marine worms.

On April 24, 1915, a botanical excursion was held at Aldgate, under the leadership of Mr. W. H. Selway. The gardens of Mr. W. H. Bagot were visited, and a study made of the large collection of European trees growing there. A visit was also made to Mrs. Caley Smith's Nursery, where a very great variety of dahlias, mostly in full bloom, was inspected. Mr. Selway, with the aid of specimens collected, addressed the members on the subject of "Leaves and their Life History," with special reference to "autumn tints." He first dealt with the development of the young bud and then the history of the young leaf, the various positions it assumes, and its process of sugar manufacture. The function of the stomata, the action of the protoplasm, and the colouring properties of the chlorophyll were also pointed out. The varying venation of the leaves, their shape, variety, and colour, as well as the causes for their autumnal colouring, were explained.

On May 10, 1915, under the leadership of Mr. A. R. Riddle, an excursion was made to the valley of the Sturt River, primarily to study the Cambrian glacial beds. Just above these, in the Cambrian series, the Tapley Hill ribbon-slates are well seen in a quarry which was visited. Further up the valley the almost unique glacial beds come into view. Mr. Riddle said the beds were of exceptional interest, and that for most of the knowledge which we to-day possess respecting them tribute must be paid to the pioneering industry of Mr. Howchin. In addition to the many glacial phenomena, the general physiographic features were made the subject of short lecturettes from Mr. Riddle. At a waterfall some interesting pot-holes were observed in the rock, and in the bottom of the holes were noticed the small stones which, under the movement caused by the water swirling around, were slowly making the holes larger.

On June 7, 1915, a whole day's excursion was held at Forest Range, but owing to the inclemency of the weather little field work was done. The leader, Mr. E. H. Lock, F.R.H.S., contributed a paper upon "The Commercial Value of our Stringybarks," and much valuable information was gathered from it.

On June 28, 1915, a geological excursion was made under the leadership of Mr. P. H. E. Runge (Hon. Secretary) to Williamstown. The journey was taken to Gawler by train and then by motor through Williamstown to the site of the

Warren Reservoir. Here an inspection was made of the works that were in progress and of the interesting contórted rocks exposed in the wall of the excavations. The pipeclay deposits and the rutile mines existing in the neighbourhood were also examined. From these and other sources good collections of specimens were made.

On July 24, 1915, Morialta Gorge was visited, and under the leadership of Mr. A. G. Edquist a physiographical study of the features of the gorge was made. The two distinct types of scenery which characterize the gorge—the softly-rounded hills at the entrance and covered with a wealth of green turf, and its rugged and almost barren type of scenery that abounds further up the gorge—were pointed out. It was also shown what a great part the rainfall, dip of strata, jointing and composition of rocks played in the moulding of the scenery. Mr. Edquist explained that the marked change in the flora was due to the nature of the rocky subsoil. Certain communities of plants preferred the clays and loams derived from argillaceous rocks, others enjoyed the calcareous loams derived from the thick stratum of dolomitic limestone, while a third class flourished on the light sandy soils derived from the quartzites which gave rise to the gorge. At the entrance of the gorge, where the dense quartzite rocks lifted themselves to a height of several hundred feet, the junction of the hard and soft rocks was pointed out, and they marked the position of the original waterfall.

On August 21, 1915, an excursion was made to Snowden Beach, near the Outer Harbour, under the leadership of Mr. W. J. Kimber. After a good collection of marine mollusca had been gathered from the long strip of narrow beach, Mr. Kimber, by a series of short discourses, mentioned many interesting facts about their habits. The differences between the carnivorous and vegetarian mollusca were explained and the methods of attack used by the univalve shells upon the bivalve shells were demonstrated. A piece of a *Cypraea thersites* was taken, showing that this beautiful cowrie, though not suspected previously, lives in the adjacent waters. Specimens of *Pinna inermis*, with *Capulus australis* and *Ostrea angasi* attached, were also found.

On September 11, 1915, Mrs. R. S. Rogers lead a walking excursion from Upper Sturt to Belair, with the object of studying the various species of wattles. The display was somewhat disappointing, the season being rather advanced. However, this was more than compensated for by the abundance of other flora, notably orchids, of which eleven species were taken.

NEW DISCOVERIES BY MEMBERS.

During the North-western Scientific Expedition, Captain White, M.B.O.U., R.A.O.U., discovered five new birds, twenty new varieties of ants, several new plants, and some new spiders (not yet classified).

S. A. WHITE, *Chairman.*
PERCIVAL RUNGE, *Hon. Secretary.*

September 21, 1915.

TWENTY-SEVENTH ANNUAL REPORT OF THE NATIVE FAUNA AND FLORA PROTECTION COMMITTEE OF THE FIELD NATURALISTS' SECTION OF THE ROYAL SOCIETY OF SOUTH AUSTRALIA FOR THE YEAR ENDED SEPTEMBER 21, 1915.

During the year several correspondents have communicated with the Committee pointing out that the destruction of native bird life continues, particularly in the Meningie and the Lake districts. The matter was placed in the hands of the Hon. Secretary (Mr. P. Runge), and enquiries were made from the Protector of Aborigines and other gentlemen concerned. Afterwards it was placed in the hands of the President of the P.A.O.U., and is being attended to.

Mention was made in the last annual report that the "Toolach," or brush kangaroo, whose fur is of exceptional value, was believed to be, for want of proper protection, extinct. However, during the year a few of these native animals have appeared on a station in the South-east. If any of these can be secured alive it is intended to place them on the Kangaroo Island Reserve, providing that their proper protection is assured.

The Chairman of the Committee (Mr. Edwin Ashby) has been again in communication with the State Government concerning the Bill prepared for the purpose of the establishing of Flinders Chase and investing it in trustees as a National Park and a Fauna and Flora Reserve. The Bill was prepared nearly two years ago by the Parliamentary draughtsman to be introduced into the House, but it is now feared that owing to the war and national stress the financial suggestions it embodies may defer its introduction indefinitely, and rather than this should happen the Committee would sooner that it be modified. At the request of the Parliamentary draughtsman our Chairman went through the draft Bill on two occasions and made such recommendations as seemed advisable.

The Chairman also received a letter from Mr. W. H. Strawbridge in reference to the matter last May. He suggested that Western River should be included in the Reserve, as the mouth of the river is one of the few possible harbours at that end of the island. The locality is well suited to the needs of the lyre bird and other fauna. Information has reached the Committee that all the protection of the fauna at the western end of Kangaroo Island is in abeyance, as it is under "Military Law." If this is correct, it is felt that some action might be taken in approaching the Federal authorities to protect the fauna.

Although the Committee has no quite recent information of the destruction of the native fauna on Kangaroo Island, it is said to be still going on, and it feels that some definite action should be taken by the State Government to prevent the extinction of so many of our native fur-bearing animals.

EDWIN ASHBY, *Chairman.*
PERCIVAL RUNGE, *Hon. Secretary.*

September 21, 1915.

FIELD NATURALISTS' SECTION OF THE ROYAL SOCIETY.

Statement of Receipts and Expenditure for Year ended September 30, 1915.

RECEIPTS.	£	s.	d.	EXPENDITURE.	£	s.	d.
By Credit Balance brought forward	13	17	2	To Stationery	1	0	2
,, Grant from Royal Society, 1914	20	0	0	,, Printing	13	6	9
,, Bank Interest	0	7	2	,, ,, *Register* account, 1914	10	11	10
,, Members' Subscriptions	20	15	0	,, Postages	3	0	2
,, Rebate on Printing Account	0	7	6	,, Members' Subscriptions paid to Royal Society	17	2	6
,, Grant from Royal Society for 1915	20	0	0	,, Hire of Hall and Lantern	2	6	2
				,, Telephone	1	0	1
				,, Advertising	1	5	10
				,, Library Account—Index Cards and Binding	1	18	9
				,, Balance to Credit	23	14	7
	£75	6	10		£75	6	10

Statement of Assets and Liabilities.

ASSETS.	£	s.	d.	LIABILITIES.	£	s.	d.
By Balance in Bank	23	14	7	To Amount due to Royal Society	20	15	0
				,, Balance	2	19	7
	£23	14	7		£23	14	7

Excursion Account.

	£	s.	d.		£	s.	d.
By Credit Balance	2	6	4	To Hire of Motors and Steamers	31	4	0
,, Excursion Fares	37	8	6	,, Tips to Drivers	1	10	6
				,, Refreshments	1	7	8
				,, Postages, etc.	0	1	9
				,, Crockery	0	14	0
				,, Balance carried forward	4	16	11
	£39	14	10		£39	14	10

Balance Brought Forward ... £4 16s. 11d.

Audited and found correct,

A. M. DRUMMOND, }
WALTER D. REED, F.C.P.A., } *Auditors.*

September 17, 1915.

MALACOLOGICAL SECTION

OF THE

Royal Society of South Australia (Incorporated).

ANNUAL REPORT FOR THE YEAR 1914-1915.

Eight meetings were held during the year. There are twelve members on the roll. The members are:—Dr. Verco, Dr. Pulleine, Mr. W. Howchin, Miss Robinson, Mrs. Robinson, Miss Stenhouse, and Messrs. E. G. Saunders, W. J. Kimber, Walter Reed, Errol Hanley, F. L. Saunders, and Dr. Torr.

During the year over seventy species of shells have been identified and classified, pertaining to the following genera:—*Turritella*, *Vermicularia*, *Siliquaria*, *Lippistes*, *Seguenzia*, *Bittium*, *Trifora*, *Cerithium*, *Potamides*, *Batillaria*, *Cerithiopsis*, *Cypraea*, *Trivia*, *Erato*, *Ovula*, *Cassis*, *Cassidea*, *Cymatium*, *Colubraria*, and *Argobuccinum*.

Dr. Verco is elected President for 1915-16 and Dr. Torr Secretary and Treasurer.

RECEIPTS AND EXPENDITURE FOR THE YEAR 1914-15.

Receipts.

	£	s.	d.
To Subscriptions	1	2	6
,, Debit Balance	0	2	7
	£1	5	1

Expenditure.

	£	s.	d.
By Debit Balance, 1913-14	0	2	7
,, Subscriptions to Royal Society	1	2	6
	£1	5	1

WILLIAM G. TORR, *Secretary and Treasurer.*

GENERAL INDEX.

[Generic and specific names printed in italics indicate that the forms described are new.]

Ablepharus lineo-ocellatus, 769.
Aborigines of Everard Range, 725; language of, 732.
Acanthaceae, 836.
Acanthiza iredalei morgani, 753; marianae, 752, 762; pusilla consobrina, 752; uropygialis condora, 753, 762.
Acanthogenys rufogularis cygnus, 759, 766.
Acantholophus, 57, 59; A. *alpicola*, 71; *browni*, 66; *halmaturinus*, 69; *scaphirostris*, 73; *simulator*, 70; *tennantensis*, 68.
Acanthophis pyrrhus 737.
Acanthoserphus, 384; *A. albicoxa*, 385.
Accipiter c. cirrocephalus, 744.
Achaea janata, 370.
Acherres, 63; A. *granulatus*, 84; *latus*, 83; *pilosus*, 84.
Acidopria *unidentata*, 431.
Aclista australiensis, 394; *leai*, 394; *tasmanica*, 395.
Acontianae, 369.
Actinonema rosae, 355.
Aedriodes, 63.
Aegotheles cristata, 747.
Agamidae, 767.
Aganippe *whitei*, 774.
Agaristidae, 362.
Agetinus, 235, 262; table of species, 262; A. *abjectus*, 269; *admirabilis*, 266; aequalis, 264; *cacozelus*, 270; *cicatricosus*, 267; *compositus*, 269; *confluens*, 266; *croesus*, 272; *hackeri*, 268; *juvencus*, 271; *nitidivirgatus*, 270; *obliquus*, 265; subcostatus, 263.
Agrotinae, 362.
Agrotis compta, 362; spina, 363.
Aizoaceae, 830.
Alcedinidae, 747.
Alexirhea, 62.
Alittus, 235, 273; table of species, 273; A. foveolatus, 273; *macleayi*, 275; micans, 274; *rugipennis*, 276; *scutellaris*, 274.
Alternaria solani, 356.
Amarantaceae, 95, 829
Amata clementsi, 358; magistri, 359; xanthosoma, 358.
Amatidae, 358.
Amaurobius robustus, 775.
Amelora polychroa, 383.
Amorphorhinus, 63; A. *muriceus*, 85.
Amphibolurus barbatus, 769; maculatus, 767; reticulatus, 767; rufescens, 768.
Amphicrossa hemadelpha, 383.
Amphihelia striata, 351.
Amphistegina lessonii, 349; 350.
Amycterides, 57.
Anatidae, 744.
Angelia callisarca, 381; crypsigramma, 381; *eurypsamma*, 381; *haplochroa*, 382; heteropa, 381; *philocosma*, 381; platydesma, 381; *stenoscia*, 382; tephrochroa, 380.
Annual meeting, 851; Report, 852; Balance sheets, 854.
Anomalina ammonoides, 349; grosserugosa, 349.
Anoplocapros, 479; A. *gibbosus*, 474, 480; lenticularis, 479.
Anteris *nigriscutellum*, 448.
Anthus australis adelaidensis, 759, 766.
Anua parcemacula, 370; tirhaca, 370.
Aphelocephala castaneiventris whitei, 755, 764; nigricincta, 756, 765; pectoralis, 756, 764.
Aracana and its allies, 477, 483, 484; A. aurita, 475, 484, 486; flavigaster, 491; ornata, 489; spilogaster, 487; spilogaster var. *spinosissima*, 488; var. *angusta*, 488.
Arachnida (White's Expedition), 772.
Arctiadae, 359.
Ardeidae, 743.
Ardices glatignyi, 361.
Argiopidae, 781.
Argyrodes, 780; A. *binotata*, 781.
Ariathisa adelopa, 374; adelphodes, 367; angasi, 366; atmoscopa, 367; atra, 367; capularis, 367; chrysospila, 366; *coelenoptera*, 365; confinis, 367, 374; cornuta, 366; endesma, 366; etoniana, 367; euchroa, 366; flexirena, 367; gypsina, 366; heterogama, 367 374; hydraecioides, 367; interferens, 367; microdes, 367; micro spila, 367; monochroa, 367; para gypsa, 366; paratorna, 367; tortisigna, 366.

Armactica conchidia, 369.
Artamidae, 754.
Asclepiadaceae, 834.
Ascochyta corticola, 355.
Ascopharynx cervinus, 735.
Ashby, E., Unrecorded ferns, 100. Exhibits: moth, shell, and birds, 845; birds and ferns, 850.
Ashbyia lovensis, 752.
Ashmeadopria, 438; table of species, 438; A. *acuta*, 439; *laeviventris*, 440; *pulchrithorax*, 439; *rubrithorax*, 438.
Ashton, H., Synonymic Notes on Cicadidae, 91.
Aspidium molle, 100; unitum var. propinquum, 101.
Asthena pulchraria, 375.
Asura lydia, 360.
Atopomycterus nicthemerus, 476.
Atychoria, 63.
Auletes *tibialis*, 798.
Aurepthianura aurifrons, 752, 762.
Austrartamus melanops, 754, 764.
Austrodicaeum hirundinaceum, 757.
Austrotis a. australis, 743.
Austroturnix v. velox, 740.
Aves (White's Expedition), 740.
Avicularidae, 774.
Azimuth, Circum-elongation observations for, 44.

Barnardius zonarius *myrtae*, 745.
Baryconus *albicoxa*, 446; magnificus, 445; *perpulcher*, 447; *substriaticeps*, 446; superbus, 445.
Bassia inchoata, 94.
Bednall, W. T., Death of, 849.
Belytidae, 389; table of genera, 389.
Berycidae, 461.
Bignoniaceae, 836.
Biloculina depressa, 348; ringens, 348.
Birds (White's Expedition), 740; contents of stomachs, 760, preservation of, 843.
Black, J. M., Additions to flora of South Australia, 94; Botany of White's Expedition, 823; language of Everard Range tribe, 732. Exhibits: noxious burr, 849.
Boraginaceae, 834.
Bostrychidae, 794.
Botany (White's Expedition), 823.
Bothriopria, 406; table of species, 406; B. *atra*, 408; *aureipes*, 409; *leai*, 407; *infuscipes*, 409; *splendida*, 406; *unicolor*, 407; *victoriae*, 408.
Bothroponera piliventris, 805.
Brachymycterus, 63,87; *B. auritus*, 88.
Bragg, Prof., congratulated, 848.
Broken Hill, Lepidoptera of, 357.
Bubaris, 62.
Buciaria bipartita, 362.
Bulestes torquatus etholae, 755.
Bulimina elegantissima, 348.
Buprestidae, 794.
Burhinidae, 743.
Burhinus m. magnirostris, 743.
Buthidae, 773.

Cacatoidae, 745.
Cacellus *regalis*, 445.
Calamanthus campestris isabellinus, 751, 762.
Calathusa *aethalistis*, 372; *hemiscia*, 371; ischnodes, 371; *thermosticha*, 372.
Callanthias allporti, 464.
Calomyrmex splendidus, subsp. purpureus, var. smaragdinus, 820, var. *eremophilus*, 820.
Campanulaceae, 838.
Campbellornis personatus munna, 754; superciliosus, 754.
Camponotus *aurofasciatus*, 817; *eremicus*, 815; *latrunculus*, 814; *leae*, 819; maculatus, subsp. novaehollandiae, 814; subsp. discors, 814; subnitidus, 817; *whitei*, 818.
Campophagidae, 750.
Cantherines ayraudie, 472; granulatus, 473; hippocrepis, 472; mosaicus, 472; setosus, 472.
Caprichthys, 482; *C. gymnura*, 482.
Caprimima procrena, 359.
Capropygia, 478; C. unistriata, 474, 478.
Carangidae, 464.
Caranx georgianus, 464.
Carcharhinidae, 460.
Cardiopria, 429; *C. ventralis*, 429.
Cardita scabrosa, 351.
Caryophyllaceae, 95, 830.
Cassidulina subglobosa, 348.
Castulo gratiosa, 361; laeta, 361.
Catocalinae, 369.
Caudina chilensis, 21.
Celama albalis, 359.
Cenchrus australis, 92.
Cerambycidae, 795.
Ceramodactylus damaeus, 767.
Ceraphronidae, 452.
Cerchneis c. cenchroides, 745, 760.
Certhiidae, 757.
Certhionyx variegatus, 757, 765.
Chapman, R. W., Circum-elongation observations for Azimuth, 44.
Charadriidae, 742.
Chasmina pulchra, 368.
Cheel, E., New species of Leucopogon, 98.
Cheilodactylidae, 464.
Chelidonichthys kumu, 469.
Chenopodiaceae, 94, 827.
Cheramoeca leucosternum stonei, 748.
Chiracanthium (?) pennuliferum, 786.
Chlenias arietaria, 383; banksiaria, 383; heteromorpha, 383; melanoxysta, 383; serina, 383.

Chloridea obsoleta, 362.
Chloritis squamulosa, 771.
Chrysomelidae, 102, 795.
Cicadidae, Synonymic Notes on, 91.
Cinclosoma casanotum dundasi, 751.
Cintractia sorghi-vulgaris, 364.
Cirphis ciliata, 363; leucosta, 363; loreyi, 363; uda, 363; unipuncta, 363.
Cisowhitea, 799; *C. longicollis*, 800.
Clavulina parisiensis, 348.
Cleland, J. B., Haematozoa of Australian Birds, 25; Red cells of some Australian Vertebrates, 38.
Cleorina, 166; C. pulchella, 166; *purpurea*, 166.
Cleptor, 301; table of species, 302; C. *apicistriatus*, 313; *bigener*, 309; *caeruleus*, 307; *chloropterus*, 313; *cornaceus*, 316; *electus*, 315; *globulus*, 308; *goudiei*, 317; haroldi, 304; inermis, 303; *laevicollis*, 312; *minutus*, 310; *multicolor*, 304; *pallidiventris*, 314; paradoxus, 316; rufimanus, 304; *semiviridis*, 309; simplicipennis, 315; *striatipectus*, 307; *subhumeralis*, 306; *tersus*, 311.
Climacteris erythrops superciliosa, 757, 765.
Clubiona robusta, 786.
Clubionidae, 785.
Coccinellidae, 795.
Colaspis mutica, 277.
Colaspoides, 278; table of species, 279; C. *acervata*, 296; *anomogastra*, 290; *bicarinata*, 288; *complicata*, 284; *crassipes*, 297; *doddi*, 296; *elegantula*, 289; *foveiventris*, 294; *frenchi*, 282; *haemorrhoidalis*, 293· *heroni*, 289; *hoblerae*, 285; *howensis*, 280; *mimeta*, 291; *norfolcensis*, 281; *pallidula*, 295; *parvidens*, 300; *picticornis*, 287; *pictipes*, 298; *poeciloderma*, 292; *quieta*, 283; *rara*, 283; *rectilatera*, 285; *similis*, 299; *suavis*, 295; *tarsalis*, 286.
Colasposoma sellatum, 278.
Coleoptera (White's Expedition), 794.
Colletotrichum lindemuthianum, 356.
Colluricincla rufiventris whitei, 755, 764.
Colochirus doliolum, 21; quadrangularis, 21.
Columbidae, 740.
Colydiidae, 794.
Compositae, 96; 838.
Coniferae, 824.
Conostigmus *pretiosus*, 454.
Convolvulaceae, 834.
Copyrights of the Society, 844, 845.
Coracina novae-hollandiae melanops, 750, 761.
Cornuspira involvens, 348.
Corvus coronoides perplexus, 759.
Cosmodes elegans, 364.
Cosmophasis (?) bitaeniatus, 790.
Cosymbia penthearia, 379.
Covidae, 759.
Cracticus nigrogularis mellori, 755.
Creed, E., and E. C. Joshua, South Australian Holothuroidea, 16.
Cromatogaster longiceps, var. *curticeps*, 809; *whitei*, 808; *xerophila*, 810; *xerophila*, var. *exigua*, 811.
Cremnophora angasi, 361.
Cristellaria cultrata, 348; gibba, 348.
Cruciferae, 830.
Cruria donovani, 362.
Cryptocrithinae, 777.
Cryptocrithus, 777; *C. occultus*, 778.
Cryptoserphus *nigriscutum*, 388; *nitidus*, 388.
Ctenosia infuscata, 359.
Cubicorrhynchus, 59, 60; C. *aureomaculatus*, 80; *curvipes*, 76; *quadraticollis*, 79; *rectipes*, 82; *strigicollis*, 77; *substrigosus*, 79.
Cuculidae, 747.
Cucullothorax, 88; *C. horridus*, 89.
Cucumaria inconspicua, 17; mutans, 18; squamata, 17; *striata*, 18.
Cucurbitaceae, 838.
Cudnellia, 332; C. *apicalis*, 333; canaliculata, 334; insularis, 334.
Curculionidae, 57, 795.
Cyanalcyon pyrrhopygius, 747, 760.
Cyperaceae, 826.
Cyttidae, 465.
Cyttosoma boops, 465.

Dactylosparus macropterus, 464.
Darantasia perichroa, 377.
Dasyatidae, 460.
Dasyatis brevicaudatus, 461.
Dasygaster eutherma, 363.
Dasypodia selenophora, 371.
Delma fraseri, 767.
Demansia modesta, 737.
Dentalium mantelli, 351
Dermorhytis, 320.
Diaea (?) *pulleinei*, 785; punctata, 785.
Dialeptopus, 63.
Diaphorillas textilis purnelli, 754, 763.
Diapria (?) coccophaga, 443.
Diapriidae, 397; table of genera, 397.
Dicaeidae, 757.
Diceratucha xenopis, 377.
Dichromodes, 377.
Dictynidae, 775
Dilleniaceae, 833.
Diodontidae, 476.
Diphoropria rufipes, 443.
Diplodactylus ciliaris, 767.
Discorbina tabernacularis, 349; turbo, 349.

Disogmus *nigerrimus*, 386.
Ditropidus *whitei*, 800.
Dodd, A. P., Australian Hymenoptera, 384. Errata, 454.
Dolomedes facetus, 786.
Dolophones, 781; D. *intricata*, 782 *thomisoides*, 782.
Donuca spectabilis, 370.
Drassidae, 779.
Dromiceiidae, 740.
Dromiceius novae-hollandiae, 740.
Dytiscidae, 794.

Earias huegeli, 369; ochrophylla, 369; parallela, 369.
Echemus (?) griseus, 779.
Echeneis australis, 340.
Ectopatria aspera, 363.
Ectropis hieroglyphica, 380; plectroneura, 380; pristis, 380.
Edquist, A. G., Exhibits: ants, 844; photographs of lightning, 849.
Edusa, 191; table of species, 193; E. *abdominalis*, 209; *aracoccroides*, 207; *atrichia*, 212; *aureorufa*, 218; aureoviridis, 201; *blackburni*, 205; *chalcea*, 232; *chlorion*, 224; *chlorophana*, 213; chrysura, 200; *clypealis*, 208; *discicollis*, 233; *dispar*, 229; distincta, 204; diversicollis, 202; evanescens, 200; *flavicornis*, 222; *flavipes*, 214; froggatti, 202; *fusca*, 207; germari, 199; *griffithi*, 226; *heterodoxa*, 216; *impressiceps*, 229; *marginicollis*, 217; *melanoptera*, 219; *melanosoma*, 205; *metallica*, 230; meyricki, 204; *mira*, 225; *montana*, 205; *monticola*, 210; *niveosquamosa*, 225; *pallidiventris*, 206; *palpalis*, 227; pavens, 202; perplexa, 203; *plicata*, 213; *podagrosa*, 215; *posthumeralis*, 223; puberula, 201; *rufilabris*, 211; *securigera*, 234; *sericea*, 228; *setipennis*, 221; spinicollis, 204; *submaculata*, 218; suturalis, 200; *tridens*, 220; *turneri*, 232; *ursa*, 220; *virgatipes*, 231; viridicollis, 199; *viridifrons*, 221; *viridilatera*, 223; *viridimetallica*, 215; viridipennis, 200; *ziczac*, 206; *zietzi*, 217.
Edusoides pulcher, 277.
Egernia whitii, 769.
Egestria sulcicollis, 796.
Elateridae, 794.
Elseya m. melanops, 742.
Emblema picta ethelae, 759.
Emmiltis *argillina*, 378; cosmadelpha, 378; trissodesma, 378.
Empusa muscae, 355.
Entomacis, 399; table of species, 400; E. *australis*, 400; *elegans*, 401; *monilicornis*, 400.
Entorrhiza solani, 354.
Eois albicostata, 377; stenozona, 378.
Eolophus r. roseicapillus, 745.
Erato minor, 351.
Eremaea, 803; *E. zonospila*, 803.
Eremochroa alphitias, 364; macropa, 364; paradesma, 364; thermidora, 364.
Eremophila neglecta, 96.
Erysiphe graminis, 354.
Erythrichthyidae, 464.
Ethelornis culicivorus musgravi, 749.
Eublemma anachoresis, 368; cochylioides, 368; dubia, 368; rivula, 368.
Euchloris albicosta, 379; vertumnaria, 379.
Eucolaspis, 318; *E. tranquilla*, 320; *tricolor*, 318.
Eugaleus australis, 460.
Euhoplopria, 414; table of species, 415; *E. carinatifrons*, 415; *emarginipennis*, 416; *lativentris*, 416.
Eulocastra eurynipha, 368.
Eumichthis saliaris, 363; sepultrix, 363.
Eumicrosoma, 452.
Eumolpides, Notes on Australian, 102; table of genera, 106; catalogue, 109.
Euomus, 62.
Euphorbiaceae, 832.
Eupterotidae, 803.
Eustrotia amorpha, 368; ritsemae, 368.
Euxoa infusa, 362; porphyricollis, 362; radians, 362; reclusa, 362.
Everard Range, Aboriginals of, 725.
Expedition to North-west Region of South Australia, 707.
Eyramytis, 754, 764.

Falco hypoleucus, 744; F. longipennis, 744.
Falconidae, 744.
Ferguson, E. W., Notes on Amycterides, 57.
Ferns, previously unrecorded, 100.
Field Naturalists' Section, 872.
Fishes of S. Aus. Government Trawling Cruise, 455.
Flora of South Australia, Additions to, 94.
Foraminifera from Lilydale borings, 344.
Formicidae, 805.
Frankeniaceae, 833.
Fungi, South Australian, 352.
Fusicladium eriobotryae, 356.

Galeorhinidae, 459.
Galeorhinus antarcticus, 459.
Galesus *assimilis*, 441; *atricoxa*, 440.
Garabidae, 794.
Geckonidae, 767.
Gehyra variegata, 767.

Geloptera, 235, 236; table of species, 237; G. *angulicollis*, 259; *armiventris*, 241; *basiventris*, 248; *bidentimedia*, 250; *coatesi*, 245; *composita*, 246; *concinna*, 258; *eluta*, 247; geniculata, 239; *hardcastlei*, 256; igneonitens, 255; *illidgei*, 260; *inaequalis*, 240; *intercoxalis*, 245; jugularis, 240; *matericollis*, 257; *lateridens*, 260; *mediofusca*, 241; *microcalla*, 255; *minima*, 254, *miracula*, 251; nodosa, 239; *orientalis*, 242; *pallipes*, 254; *porosa*, 250; *punctatissima*, 252; *rhaebocnema*, 249; *scitula*, 246; *semistriata*, 249; *setifera*, 243· *striatipennis*, 252; *tetraspilota*, 253; *tibialis*, 258; tuberculata, 239; *tuberculiventris*, 244; *uncinata*, 244.
Geobasileus chrysorrhaus addendus, 753, 763.
Geology of Torrens-limestones in type district, 1.
Geometridae, 802.
Geometrina, 375.
Geraniaceae, 832.
Glandulina aequalis, 348.
Glareolidae, 743.
Glaucopela *interioris*, 797.
Gliciphila albifrons, 757, 765.
Gloeosporium mezerei, 356; nervisequum, 356.
Goodeniaceae, 838.
Goodia, 95
Grallina cyanoleuca, 755.
Gramineae, 94, 824.
Grammodes ocellata, 370; oculicola, 370; pulcherrima, 370.
Grass, Insect-catching, 92.
Griffith, H. H. D., Exhibit: snake, 844.
Griffithia helipteroides, 97.
Gypsina globulus, 349; vesicularis, 349.

Haematozoa of Australian birds, 25.
Halaelurus (see Scylliorhinus).
Haliastur sphenurus, 744.
Hallornis cyanotus, 754.
Halone sejuncta, 359; sinuata, 359.
Haloragidaceae, 834.
Halteridium, 28.
Haplophragmium latidorsatum, 348.
Harpagocnema, 802; *H. eremoplana*, 802.
Hasarius, 791.
Hemilexis *truncata*, 401.
Hendersonia scorpicola, 355.
Herniaria hirsuta, 95.
Heterocera, 801.
Heterodontidae, 459.
Heterodontus philippi, 459.
Heteronota bynoei, 767.
Heteroscenes pallidus, 747, 760.
Hinulia fasciolata, 769; lesueurii, 769.
Hirundinidae, 748.
Hirundo neoxena, 748.
Histeridae, 794.
Histiopteridae, 465.
Holothuria hartmeyeri, 17.
Holothuroidea, South Australian, 16.
Hoplogryon *castaneithorax*, 450; *fusicoxa*, 450.
Hoplopriella, 416; table of species, 417; *H. abnormipennis*, 421; *bicoloricornis*, 419; *concoloricornis*, 423; *fuscitegula*, 423; *longiventris*, 420; *maculosa*, 419; *parvipunctata*, 422; *punctaticeps*, 423; *rubrinotum*, 421; *simulans*, 424; *sulcaticeps*, 425; *tasmanica*, 422; *tricarinata*, 424.
Howchin, W., Geological Map of Torrens-Limestones, 1. Foraminifera from Lilydale borings, 344. Exhibits: pseudo-fossils, 847.
Hybernia indocilis, 380.
Hyborrhynchus, 59.
Hydriomena actinipha, 376; cryeropa, 376; imperviata, 376; mecynata, 375; *pentodonta*, 376; subochraria, 376; suberectaria, 376; uncinata, 375.
Hydrophilidae, 794.
Hymenoptera, Australian, 384; (White's Expedition), 805.
Hypochroma occultaria, 379.
Hypoderes, 235.
Hypoperigea tonsa, 367.
Hypycnopa delotis, 376.

Ieracidea b. berigora, 744.
Ilema replana, 359.
Insecta (White's Expedition), 793.
Iridomyrmex *cyaneus*, 812; detectus var. viridiaeneus, 811; discors var. *aeneogaster*, 811; gracilis subsp. *spurcus*, 813; rufoniger, 812.
Isometroides (?) vescus, 773.
Isopeda conspersula, 785; leishmanni, 786.

Joshua, E. C., and E. Creed, South Australian Holothuroidea, 16.
Juncaceae, 826.

Kathetostoma *nigrofasciatum*, 469.
Kentrocapros, 492.

Labiatae, 835.
Lacertilia (White's Expedition), 766.
Lagena distoma, 348; hexagona, 348; marginata, 348.
Lalage tricolor, 751.
Lampona punctigera, 780.
Language of Everard Range tribe, 732.
Laniidae, 755.

Lantern, purchase of, 843.
Laphygma exempta, 364; exigua, 364.
Lasiocampidae, 803.
Lea, A. M., Insect-catching grass, 92; Australian Eumolpides, 102; stomach contents of birds (White's Expedition), 760; Insecta, Coleoptera (White's Expedition), 793. Exhibits: insects, 843, 845, 847, 849, 852.
Leaiopria, 426; *L. termitarii*, 427.
Leguminosae, 95, 831.
Leipoa ocellata, 740.
Lepidocolaspis, 331; *L. acanthomera*, 332.
Lepidoptera of Broken Hill, 357; (White's Expedition), 801.
Leptogenys conigera var. *centralis*, 805.
Leptolophus a. auricomis, 745.
Leptomeris hypochra, 378; lydia, 378; optivata, 378; rubraria, 378.
Leucocytozoa, 30.
Leucopogon, New species of, 98; L. *clelandi*, 98; *intermedius*, 99.
Leucorcirca tricolor, 750, 761.
Lewinornis rufiventris *maudeae*, 749, 761.
Lialis burtonii, 767.
Library, Donations to, 856.
Lichenosthomus keartlandi, 758; plumulus ethelae, 758, 765.
Liliaceae, 826.
Lilydale, Foraminifera from, 344.
Limopsis insolita, 351.
Lobibyx novae-hollandiae, 742.
Lophophaps plumifera leucogaster, 741.
Loranthaceae, 827.
Louvain, Protest against destruction of, 843.
Lower, O. B., Lepidoptera of Broken Hill, 357.
Loxotropa, 432; table of species, 432; L. *bicolor*, 435; *fuscinotum*, 434; *graciliventris*, 433; *grandiceps*, 432; *pubescens*, 434; *quadriceps*, 433.
Lucina affinis, 351.
Lycosa leonhardii, 786; (?) topaziopsis, 786; (?) immansueta, 787; *nigropunctata*, 787.
Lycosidae, 786.
Lygocerus *albovarius*, 453· *unilineatus*, 452.
Lymantriadae, 802.

Macroteleia *paucipunctata*, 444.
Maiden, J. H., congratulated, 849.
Mailu (New Guinea), Natives of, 494; art and knowledge, 697; economics, 592; geography, 503; magico-religious activities and beliefs, 647; social divisions, 509; tribal life, 537.
Malacological Section, 882.
Malinowski, B., Natives of Mailu (New Guinea), 494.
Malurus melanotus callainus, 753, 763.
Malvaceae, 833.
Mammalia (White's Expedition), 735.
Marginulina costata, 348.
Marsupialia, 737.
McCulloch, A. R., and E. R. Waite, Revision of Aracana and its allies, 477. (See Waite and McCulloch.)
Megapodiidae, 740.
Melanogis, 63; M. *halmaturina*, 86.
Melanodryas cucullata vigorsi, 748, 761.
Meliceptria mesoleuca, 362; pallida, 362.
Meliphaga sonora, 758, 765.
Meliphagidae, 757.
Melophorus *laticeps*, 813.
Melopsittacus undulatus, 747.
Members, List of, 869.
Menkea *hispidula*, 830.
Meuselia *auriceps*, 393.
Microfilariae, 32.
Micropia rhodocentra, 364.
Microteleia *pulchricorpus*, 449.
Miliolina agglutinans, 348; cuvieriana, 348; ferussacii, 348; oblonga, 348; seminulum, 348; undosa, 348; venusta, 348; vulgaris, 348.
Miturga lineata, 786.
Mocis alterna, 370.
Mollusca (Pulmonata—White's Expedition), 770.
Molochtus, 59; M. *hercules*, 74.
Monacanthidae, 472.
Monoctenianae, 377.
Monomorium rothsteini, var. *tostum*, 806; *whitei*, 807.
Morganornis superciliosus, 751, 762.
Motacillidae, 759.
Muridae, 735.
Muscicapidae, 748.
Mus hermannsburgensis, 736.
Myoporaceae, 96, 836.
Myrmacicelus *pilosicornis*, 798.
Myrmecia vindex var. *desertorum*, 805.
Myrtaceae, 833.
Mythites, 62.
Myzantha flavigula, 758, 766.

'Native fauna and flora Protection Committee's Report, 879.
Neobetyla, 396; *N. aurea*, 397; *pulchricornis*, 397.
Neochalcites basalis, 748, 760.
Neocleptria punctifera, 362.
Neoplatycephalus, 466.
Neopria, 429; table of species, 430; *N. erythrothorax*, 430; *sordida*, 431; *trifoveata*, 430.
Neopsephotus bourkii, 746, 760.

Neosebastes thetidis, 466.
Neositta pileata tenuirostris, 756, 765.
Neostrepera versicolor plumbea, 759, 766.
Nephila eremiana, 781.
Neurogalesus, 411; table of species, 412: N. carinatus, 412; *dissimilis*, 413; *grandis*, 413; *huckeri*, 413; *rubripes*, 414.
New Guinea (see Mailu).
Nicotiana suaveolens var. *excelsior*, 835.
Niguza *habroscopa*, 369; anisogramma, 370.
Nitidulidae, 794.
Noctuidae, 801.
Noctuina, 362.
Nodosaria (Glandulina) aequalis, 348; costulata, 348; obliqua, 348; scalaris, 348; soluta, 348.
Nolinae, 359.
Nonionina depressula, 349: umbilicatula, 349.
Notophoyx novae-hollandiae, 743.
Nubecularia lucifuga, 348.

Ocyphaps l. lophotes, 742.
Odontacolus *laeviventris*, 451.
Odontomachus haematoda subsp. coriarius, 806.
Oleaceae, 834.
Omphaletis *acontoura*, 365; exundans, 364: florescens, 364; heliosema, 364; melodora, 364; metaneura, 365; nuna, 364; sarcomorpha, 365: *spodochroa*, 365; petrodora, 365.
Oospora scabies, 356.
Operculina complanata, 349.
Ophidia (White's Expedition), 735, 737.
Oplegnathidae, 464.
Oplegnathus woodwardi, 464.
Orectolobidae, 459.
Oreoica cristata clelandi, 755, 764.
Osborn, T. G. B., South Australian Fungi, 352. Exhibits: bezoars, 848; fern, 850.
Osteodes procurata, 379.
Ostraciidae, 474.
Otididae, 743.
Owenavis osculans, 748.
Oxyopidae, 788.

Pachytyla doliopa, 380.
Pantolytoidea, 390; *P. castaneicorpus*, 392: *nigricans*, 392; *rufinotum*, 391; *splendida*, 391.
Pantolytomyia, 395; *P. ferruginea*, 396.
Papua, lecture on, 849; (see Mailu).
Paramelora lychnota, 383; zophodesma, 383.
Paramesius, 403; table of species, 403; P. *angusticornis*, 405; *aureicorpus*, 403; *grandipennis*, 404; *leander*, 403; *punctatus*, 404.
Parascyllium ferrugineum, 459.
Paratrachichthys trailli, 463.
Pardalotinus rubricatus pallidus, 757, 765; striatus finkei, 757, 765.
Parepthianura tricolor, 751, 762.
Paridae, 755.
Pasiphila filata, 375.
Pataeta carbo, 368; conspicienda, 368.
Paurocoma molybdina, 380.
Pectinella griffithii, 94.
Pedilidae, 795.
Peltohyas a. australis, 743, 760.
Peneroplis arietinus, 348.
Pentaceropsis recurvirostris, 465.
Pentellina angularis, 348, 349.
Perigea confundens, 374.
Peripyra sanguinipuncta, 363.
Peronospora schleideni, 355.
Persectania ewingii, 363.
Petrogale lateralis, 737.
Phaenopria *semicastanea*, 441.
Phaenoserphus intrudens, 389.
Phaps c. chalcoptera, 741.
Phragmatiphila truncata, 368.
Phrissogonus laticostatus, 375.
Phyllophorus *ventripes*, 19.
Phytometra argentifera, 371; chalcytes, 371; subsidens, 371.
Pimelea *continua*, 96.
Pisauridae, 786.
Pittosporaceae, 831.
Placotrochus deltoideus, 351.
Plagiogeneion macrolepis, 464.
Planispirina (Sigmoilina) sigmoidea, 348.
Planorbulina acervalis, 349; larvata, 349; mediterranensis, 349.
Plasmodium biziurae, 27; passeris, 28.
Platycephalidae, 466.
Platycephalus *conatus*, 466.
Platyscelio mirabilis, 444.
Ploceidae, 759.
Podargidae, 747.
Podargus strigoides, 747.
Podicipidae, 742.
Podomyrma bimaculata, 806.
Polia consanguis, 363.
Poliocephalus p. poliocephalus, 742.
Poliodule xanthodelta, 359.
Polydesma aglossoides, 371; igneipicta, 371; lawsoni, 371; submurina, 371.
Polydiapria, 427; *P. atriceps*, 428;
Polymorphina communis, 349; elegantissima, 349: gibba, 349; problema, 349; regina, 349.
Polypodiaceae, 824.
Polypria, 410; *P. nigriventris*, 411.
Polyrhachis *longipes*, 821.

Polystomella craticulata, 349; crispa, 349; macella, 349; verriculata, 349, 350.
Poronia punctata, 354.
Portulacaceae, 830.
Potamogetonaceae, 94.
Prionopidae, 755.
Pristiophoridae, 460.
Pristiophorus nudipinnis, 460.
Proceedings, Abstract of, 843.
Proconis eulopha, 374.
Proctotrypes australiae, 387; *janthinae*, 387.
Proctotrypidae, 384; table of genera, 384.
Prodidomidae, 775.
Prometopus horologa, 364.
Propatria mundoides, 363.
Propentapria, 425; *P. multifoveata*, 426.
Prorocopis adelopis, 373; euxantha, 373; hypoxantha, 373; leucocrossa, 373; melanochorda, 373; stenota, 373; *symmopa*, 373.
Proteaceae,
Proteuxoa mniodes, 363.
Proxenus tenuis, 367.
Prypnocolaspis, 321; *P. latibasis*, 321; *submetallica*, 322.
Psephotus varius rosinae, 746.
Pseudechis australis, 737.
Pseudocucumis bicolumnatus, 19.
Pseudohostus, 789; *P. squamosus*, 789.
Pseudolabridae, 466.
Pesudolabrus tetricus, 466.
Pseudopeziza medicaginis, 355.
Pseudoterpna argyraspis, 379.
Psilommella, 392; *P. petiolata*, 392.
Ptenoedus mathewsi vigorsi, 751.
Pterigeron *cylindriceps*, 839.
Pteris tremula, 100.
Pteropodocys maxima, 750, 761.
Pterygotrigla polyommata, 468.
Ptilotula penicillata leilavalensis, 758, 765.
Puccinia dampierae, 353; epilobii-tetragoni, 353; hederaceae, 353; helianthi, 353; hypochoeridis, 353; juncophila, 353; morrisoni, 354; poarum, 354; tasmanica, 354; tetragoniae, 354; thuemeni, 354.
Pulleine, R. H., Exhibits: native implements, 850; sorcerer's stone, 843; spiders, 843, 847.
Pullenia sphaeroides, 349.
Pultenaea *cymbifolia*, 96.
Pulvinulina elegans, 349; oblonga, 349; scabricula, 349, 350; tumida, 349.
Pygopodidae, 767.
Pylarge opiscia, 378.
Pyralidae, 803.
Pyrrholaemus brunneus, 753, 763.
Pystira orbiculata, 790.
Rainbow, W. J., Arachnida (White's Expedition), 772.
Rhinobolus nitidus, 335; *parvicollis*, 335.
Rhodona bipes, 769; gerrardi, 769.
Rhyparida, 111; table of species, 112; R. aeneotincta, 130; *alcyone*, 148; *alleni*, 146; amplicollis, 130; *angusticollis*, 147; apicalis, 122; *apicipennis*, 133; *atra*, 149; australis, 119; basalis, 127; *basipennis*, 158; *bimaculicollis*, 139; *bivitticollis*, 163; brevilineata, 125; *brevis*, 137; *caeruleipennis*, 151; *carteri*, 151; clypeata, 124; *commutabilis*, 165; *copei*, 145; *crassipes*, 140; *decipiens*, 150; didyma, 118; dimidiata, 126; discopunctulata, 129; *elliptica*, 135; flava, 131; *flavipennis*, 136; *flavolatera*, 152; fulvolimbata, 122; *fuscosuturalis*, 163; grandis, 127; *halticoides*, 156; herbacea, 129; *humeralis*, 160; *insulicola*, 154; interioris, 128; limbatipennis, 124; maculicollis, 128; mastersi, 128; *mayae*, 133; *medionigra*, 136; *mediorufa*, 149; *mediovittata*, 154; *megalops*, 132; *melvillensis*, 142; *militaris*, 143; *minuscula*, 164; morosa, 125; nigrocyanea, 121; nitida, 121; *ophthalmica*, 141; *ovata*, 158; *pallidula*, 162; *parvicollis*, 134; *pilosa*, 132; *platyderes*, 138; *polymorpha*, 143; posticalis, 130; *prosternalis*, 138; punctulata, 131; rufa, 121; *ruficeps*, 142; ruficollis, 120; *semiflava*, 160; *seminigra*, 159; *subangulata*, 139; *tenuis*, 164; *tetraspilota*, 147; *triangulifera*, 153; trimaculata, 125; *tropica*, 157; uniformis, 129; *vagans*, 161; *varipennis*, 155; *vulnerata*, 148.
Rhytidoponera cornuta subsp. taurus, 805; metallica var. *purpurascens*, 805.
Riddle, A. R., Pulmonata, 770; Exhibits: gypsum, 846; fungus, 847; "coal-apple" and chitons, 850.
Roeselia lugens, 359.
Rogers, R. S. Exhibits: orchids, 848.
Rotalia orbicularis, 349; papillosa var. compressiuscula, 349, 350; schroeteriana, 349, 350; soldanii, 349.
Rubiaceae, 838.
Rutaceae, 832.

Salticidae, 790.
Samuela cinnamonea, 751, 761.
Sandava xylistis, 371.
Santalaceae, 827.
Sapindaceae, 833.
Saragus *strigiventris*, 795

Scarabaeidae, 794.
Scarfe, T. R., Death of, 844.
Scelio australis, 449.
Scelionidae, 443.
Scelodonta, 167; *brevipilis*, 168; simoni, 167.
Scincidae, 769.
Scioglyptis trisyneura, 380.
Sclerotinia libertiana, 355.
Scoliacma bicolor, 359.
Scorpaenidae, 466.
Scorpionidae, 773.
Scrophulariaceae, 836.
Scylliorhinidae, 459.
Scylliorhinus analis, 459.
Selidosema acaciaria, 380; argoplaca, 380; diagramma, 380; excursaria, 380; suasaria, 380.
Senecio odoratus var. obtusifolius, 96.
Septoria petroselini, 355; petroselini var. apii, 355; rubi, 355; tritici, 355.
Serranidae, 464.
Servaca *obscura*, 791.
Sigmoilina sigmoidea, 348.
Sittidae, 756.
Smicrornis brevirostris subsp. *mathewsi*, 749, 761.
Solanaceae, 835.
Solenopsiella, 428; *S. distincta*, 428.
Sphaerotheca pannosa, 354.
Sphenostoma cristatum pallidum, 756, 765.
Spiloglaux boobook marmorata, 745.
Spilomicrus *gracilis*, 402; quadriceps, 403.
Spiroloculina grata, 348; tenuis, 348.
Spodoptera mauritia, 364.
Sporobolus virginicus var. pallidus, 94.
Squalidae, 460.
Squalus fernandinus, 460.
Squatina australis, 460.
Squatinidae, 460.
Stanley, E. R., Lecture on Papua, 849.
Stephanopsis altifrons, 785.
Sterculiaceae, 833.
Stichopus ludwigi, 17.
Stictopeleia c. cuneata, 740.
Storena formosa, 780.
Strigidae, 745.
Stylaclista, 389; *S. notabilis*, 390.
Sucker fish, 340.
Sylviidae, 752.

Taeniopygia castanotis, 759.
Taphrina aurea, 354.
Tarache clerana, 368; hieroglyphica, 368; nivipicta, 368.
Tathorhynchus exsiccata, 371.
Taxeotis delogramma, 377; exsectaria, 377; intextata, 377; phaeopa, 377; xanthogramma, 377.
Tenebrionidae, 794.
Terillus, 235, 261; rotundicollis, 261.
Tetralophus, 64.
Tetramopria *longiciliata*, 442; *pulchra*, 443.
Tetraodon *armilla*, 475.
Tetraodontidae, 475.
Textularia agglutinans, 348; agglutinans var. porrecta, 348; gibbosa, 348; gramen, 348.
Thalainodes allochroa, 383; paronycha, 383; tetraclada, 383.
Thallarcha albicollis, 360; *catasticta*, 360; jocularis, 360; *rhaptophora*, 360; sparsana, 360.
Theridiidae, 780.
Thomisidae, 783.
Threlkeldia obliqua, 95.
Thymelaeaceae, 96.
Thyone *nigra*, 20; *vercoi*, 19, 22.
Thrysites atun, 465.
Timeliidae, 751.
Tineidae, 804.
Tmarus *punctatus*, 784.
Tomyris, 169; table of species, 170; T. *aerata*, 187; *apicicollis*, 175; *aurea*, 189; *aureoviridis*, 177; *compacta*, 185; *curnowi*, 188; *distributa*, 189; *dumbrelli*, 176; elegantula, 173; *exilis*, 182; *femoralis*, 183; *foveiventris*, 187; foveolata, 173; *fugitiva*, 174; *gracilicornis*, 190; *illaetabilis*, 181; *incisa*, 186; *inconspicua*, 184; *insignis*, 173; *irrusa*, 190; *longa*, 177; *mediana*, 175; *picticornis*, 176; *pulcherrima*, 188; pusilla, 172; *queenslandica*. 178; *sculpticollis*, 185; *similis*, 190; *soror*, 181; *sublaeta*, 180; *tantilla*, 179; *tepperi*, 179; *villosa*, 184; *wiburdi*, 178.
Toxanthus *whitei*, 840.
Trachichthodes gerrardi, 463; lineatus, 461.
Trichinium Whitei, 95.
Trichiuridae, 465.
Trichopria, 435; table of species, 435; T. *acuminata*, 436; *affinis*, 437; *atricorpus*, 436; *longiclava*, 437; *nigricorpus*, 435.
Triglidae, 468.
Triloculina cuneata, 348; tricarinata, 348; trigonula, 348.
Triodia *aristata*, 825.
Trissolcus *coriaceus*, 451.
Tritaxia tricarinata, 348.
Trite ornata, 792.
Trochodota allani, 21.
Truncatulina haidingerii, 349; lobatula, 349; reticulata, 349; tenuimargo, 349; ungeriana, 349; wuellerstorfi, 349.
Trypanosomes, 31.

Trypocoluspis, 323; table of species, 324; *T. biimpressa*, 324; *multicarinata*, 330; *multiseriata*, 329; *obscuripes*, 326; *punctatostriata*, 327; *sinuata*, 328; *ventralis*, 328.
Turdidae, 751.
Turner, A. J., Lepidoptera (White's Expedition), 801.
Turnicidae, 740.
Turritella aldingae, 351.
Tylochares *goniosticha*, 803.
Tympanocryptis cephalus, 769; lineata, 769.

Umbelliferae, 834.
Uranoscopidae, 469.
Uroaetus a. audax, 744.
Urodacus woodwardi, 773.
Urolophus cruciatus, 460.
Uromyces fusisporus, 353; microtidis, 353; striatus, 353; tricorynes, 353.
Uromycladium simplex, 353.
Urticaceae, 826.
Utetheisa pulchella, 361.

Vanellidae, 742.
Varanidae, 769.
Varanus gilleni, 769.
Verbenaceae, 835.
Verneuilina triquetra, 348.
Vertebrates, Red cells of, 38.
Virago gibberifrons, 744.

Waite, E. R., Sucker fish, 340; Mammalia and Ophidia (White's Expedition), 735. Exhibits: casts of fish and reptiles, 845, 852; sucker fish, 849.
——— and A. R. McCulloch, Fishes of Government trawling cruise, 455. (See McCulloch and Waite.)
Wheeler, W. M., Formicidae (White's Expedition), 805.
Whiteornis goodenovii, 748, 760.
White, S. A., Expedition to Musgrave and Everard Ranges, 707; Notes on Aborigines, 725; Notes on Birds, 740. Exhibits: fulgurite, 844; bezoars, 846; birds, 844, 846, 847, 848, 851.

Xanthodule ombrophanes, 359; semiochrea, 359.
Xanthomelon adcockianum, 771; perinflatum, 770.
Xanthorhoe hyperythra, 377; paradelpha, 377; subidaria, 377.
Xeda *fasciata*, 796.
Xenochlaena porphyropa, 379.

Zanclistius elevatus, 465.
Zia tactalis, 359.
Zodariidae, 780.
Zygophyllaceae, 832.

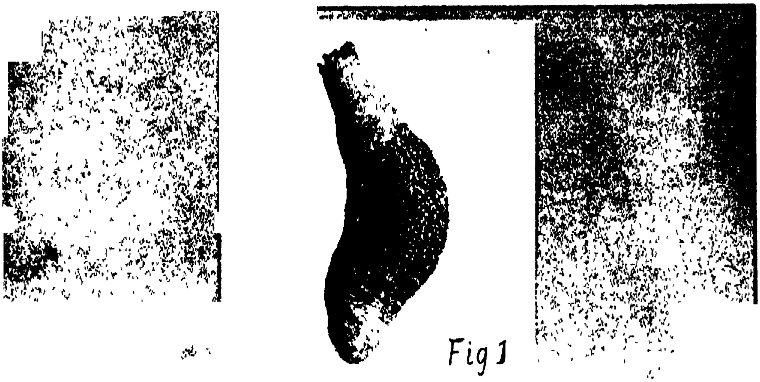
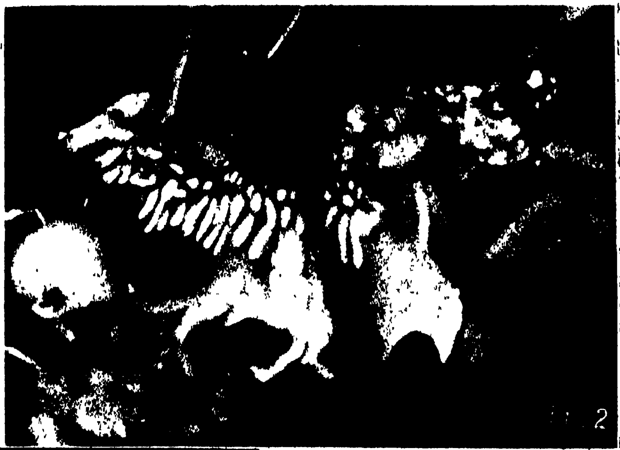


Fig 1



2

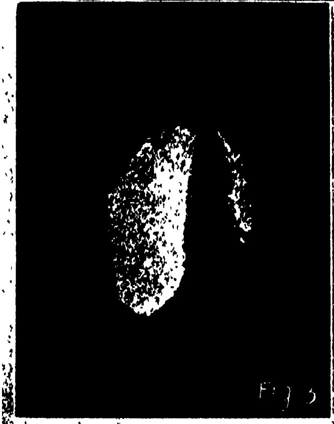
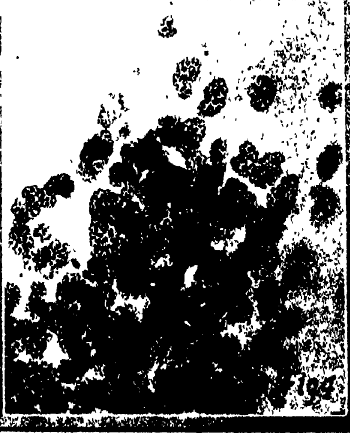
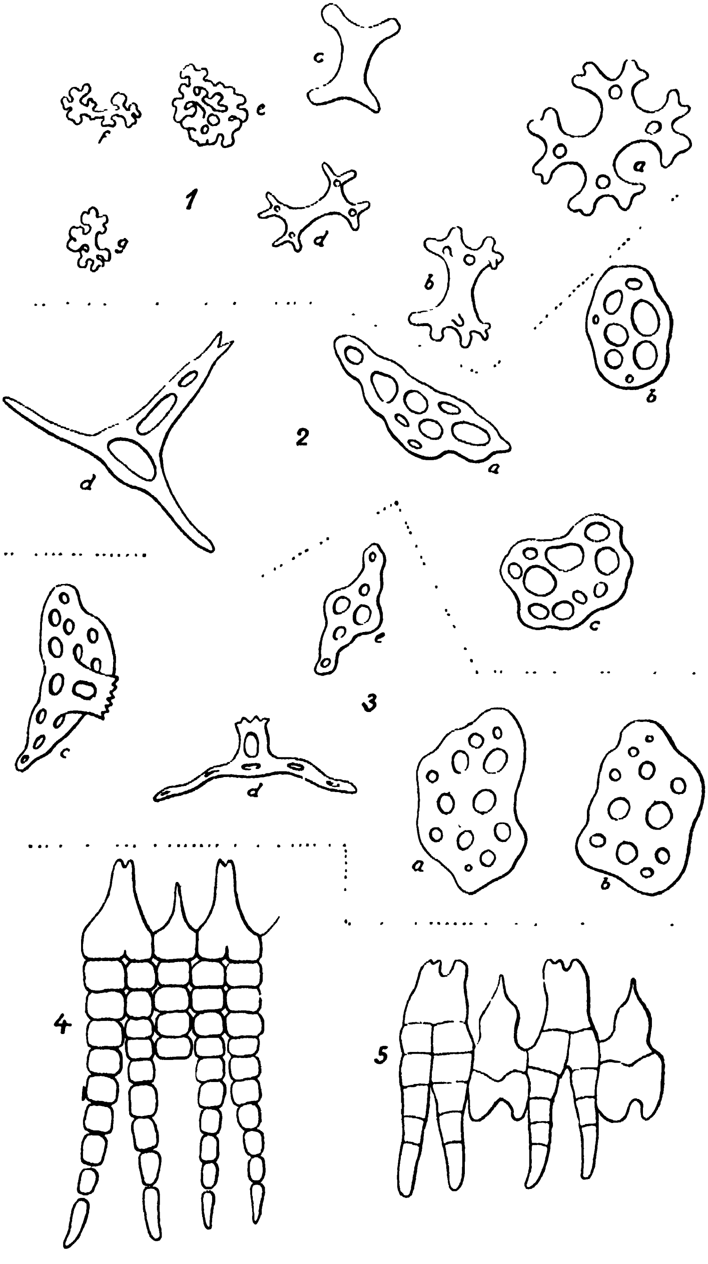


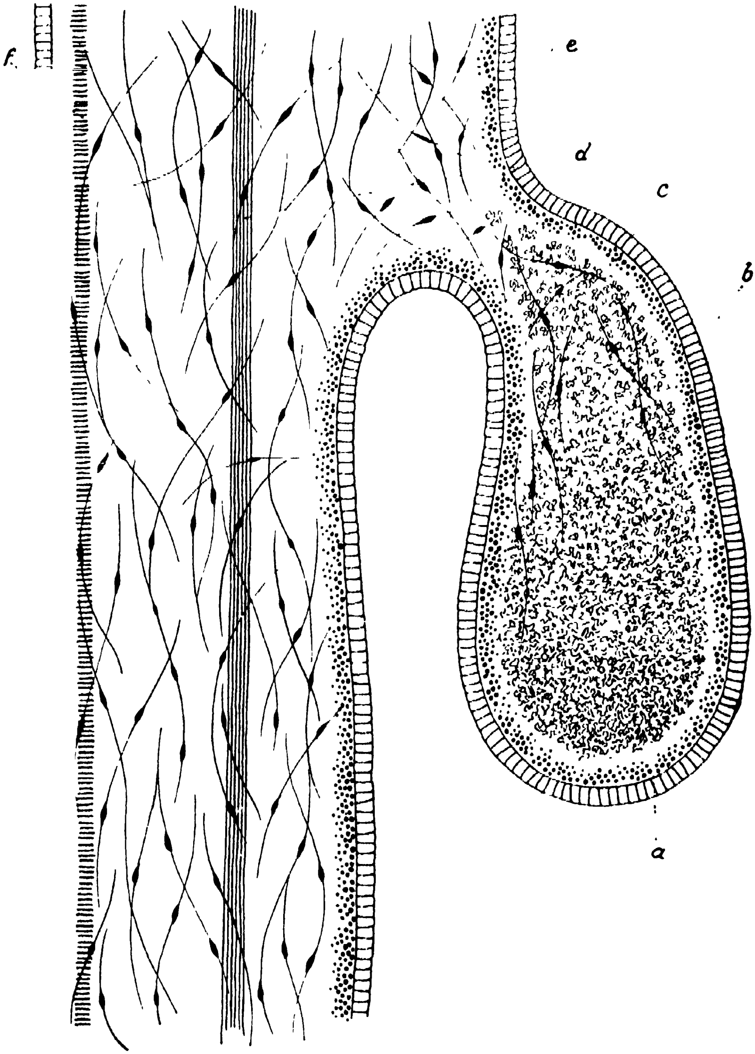
Fig 3

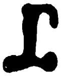


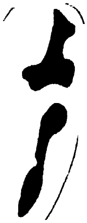
ig 4

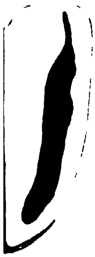
Vol. XXXIX., Plate III.

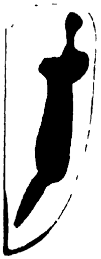


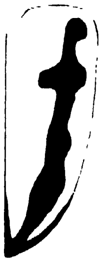

f.
e
d
c
b
a

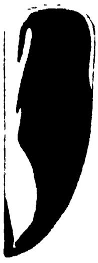


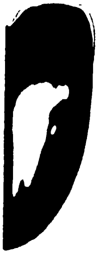


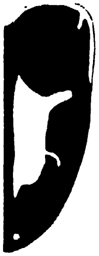


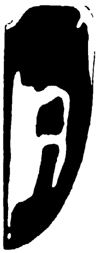




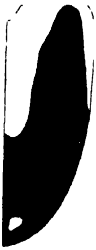




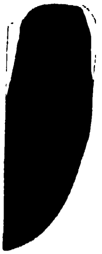


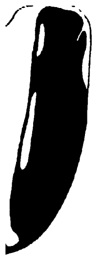


9

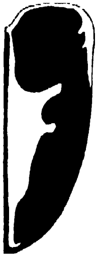


10

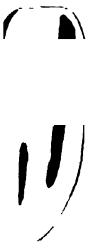




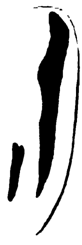
13



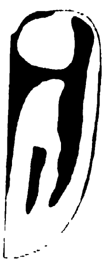
14



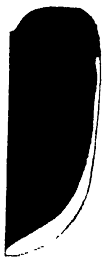
15



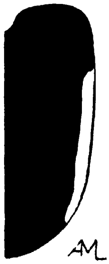
16



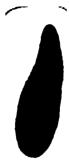
17



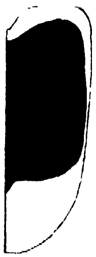
18



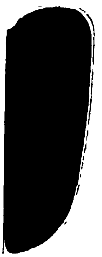
19



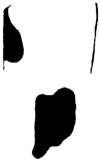
20



21

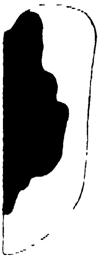


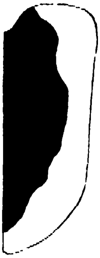
25

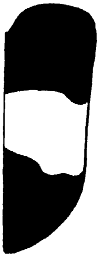

26

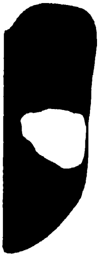
27

28

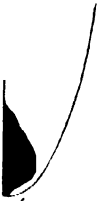

31


32


33

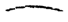

34

35

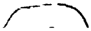

36

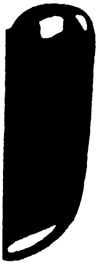
37

38


39

40

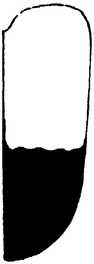

41

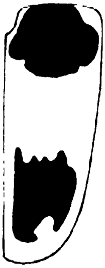


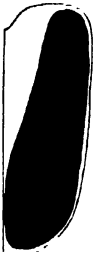
AM

43

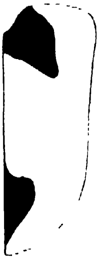
44

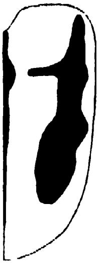

45

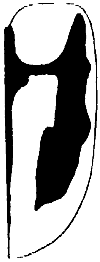

46

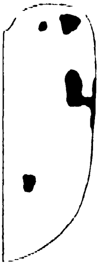

47

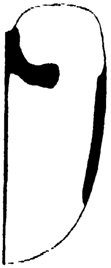
48

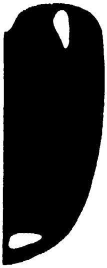

49

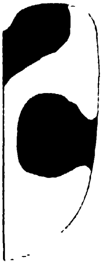

50

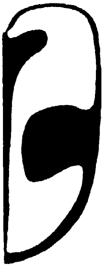

51

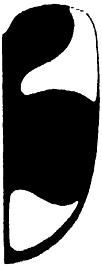

52

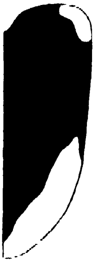

53

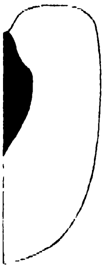

54

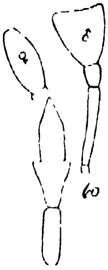

55


56

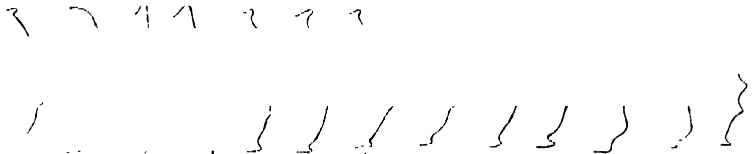

57


58


59

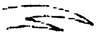


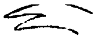
60
61


63 64 65 66 67 68 69 70 71 72 73 74 75

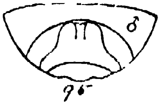
76 77 78 79 80 81 82 83 84 85 86 87 88 89

94


96


97

98



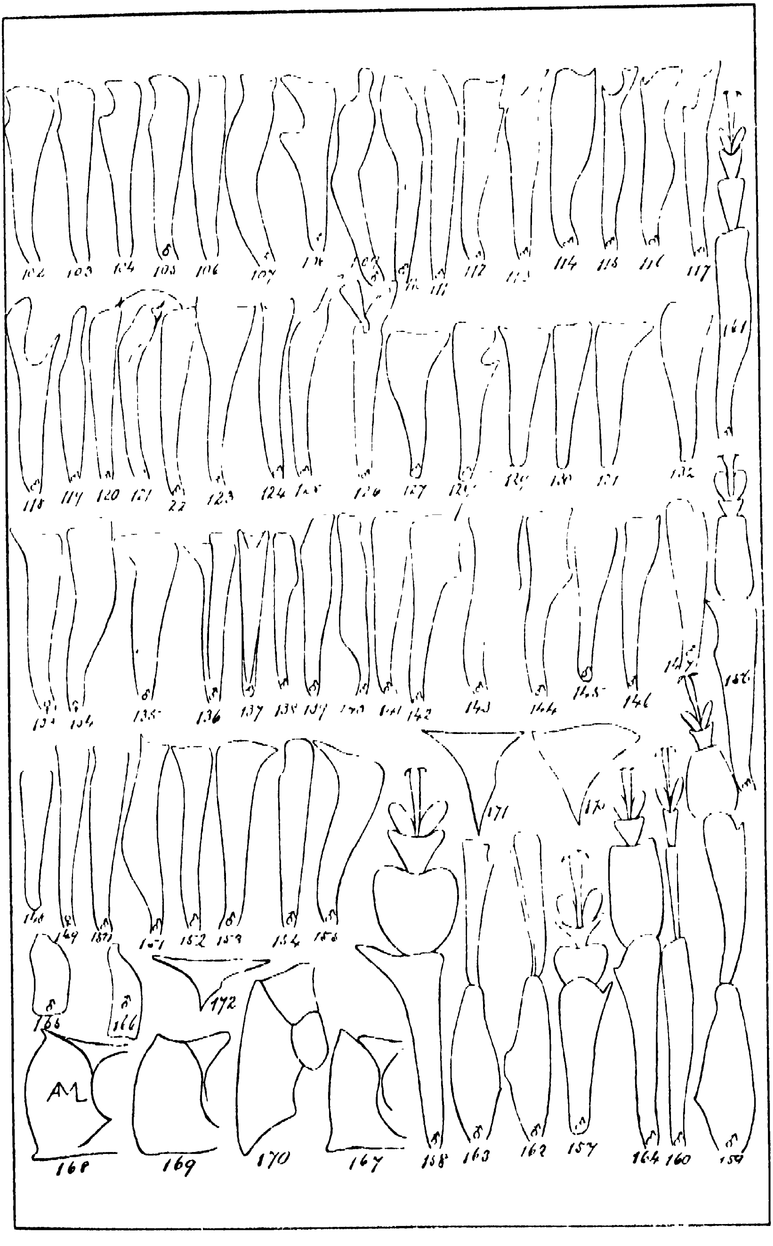
95

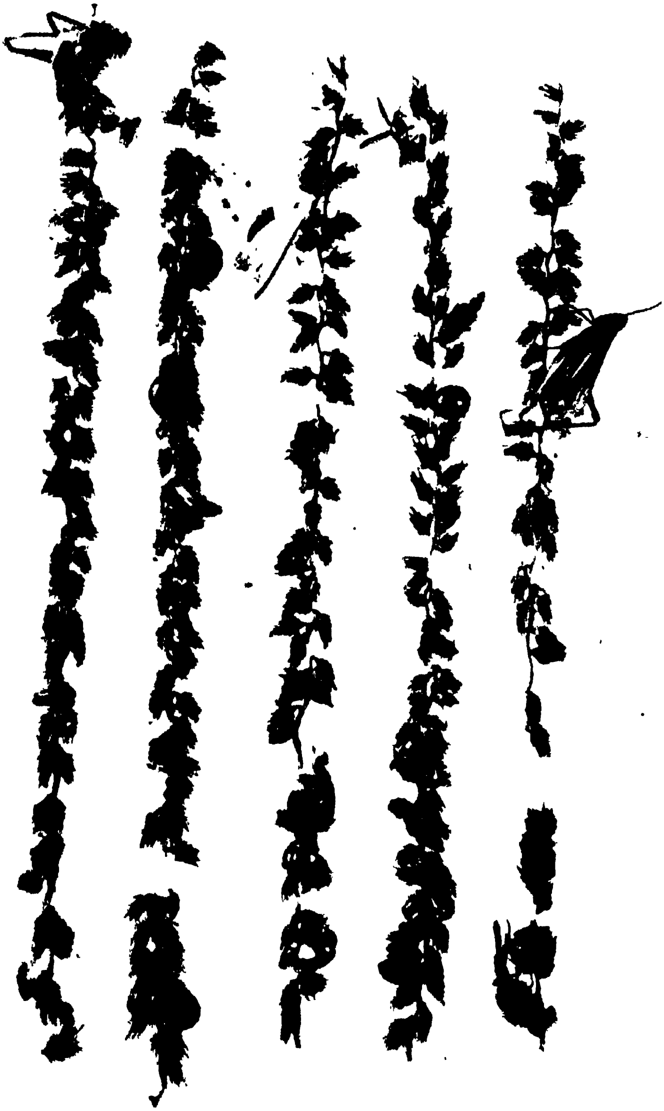
99

100

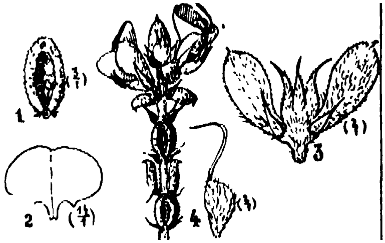
101

90 91 92 93

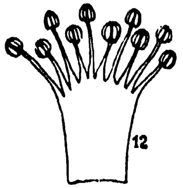

AL



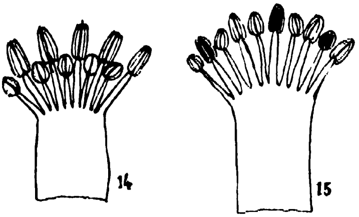
[illegible] & [illegible] PRINTERS & PUBLISHERS [illegible]



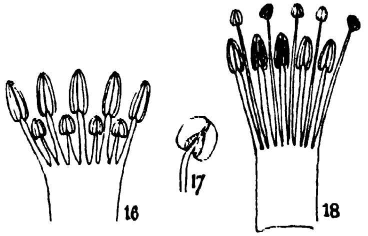
Pultenæa cymbifolia sp.n



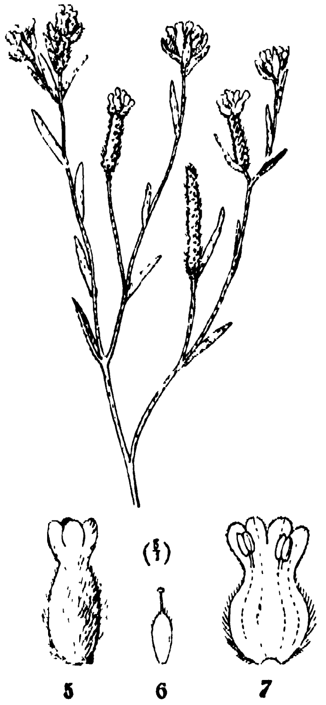
Goodia



Templetonia

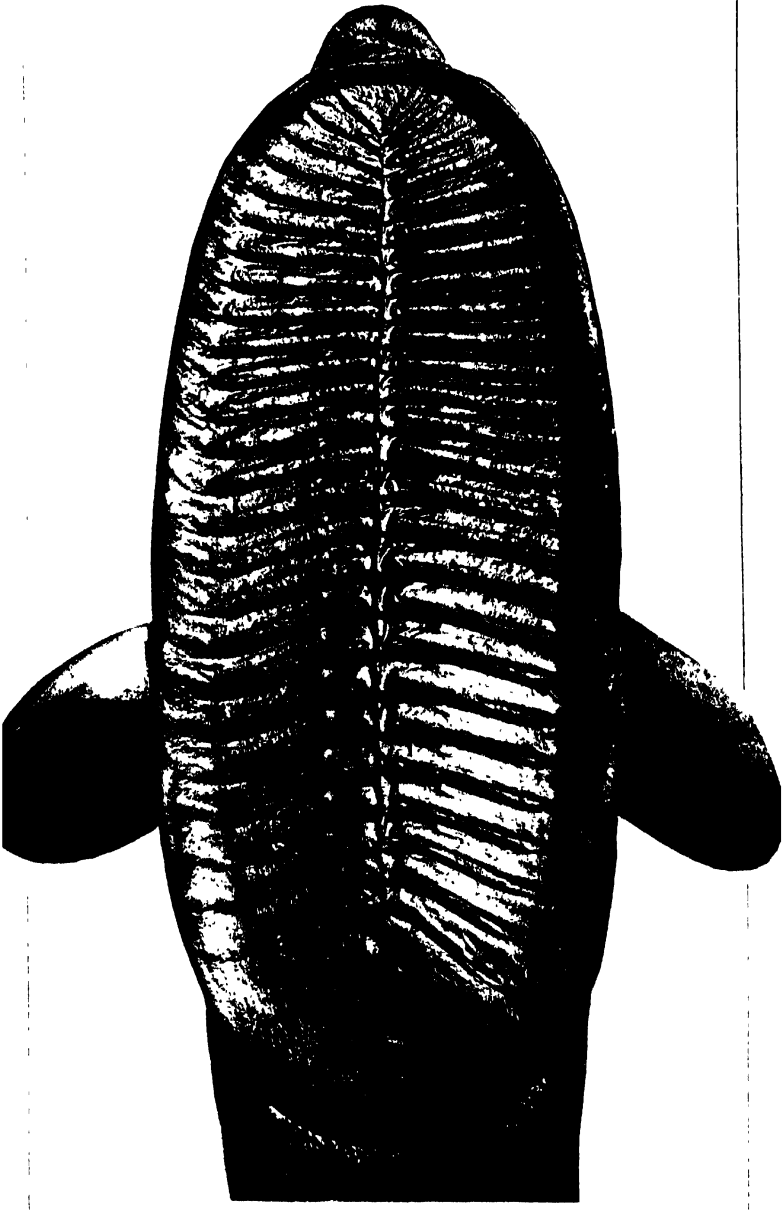


Crotalaria



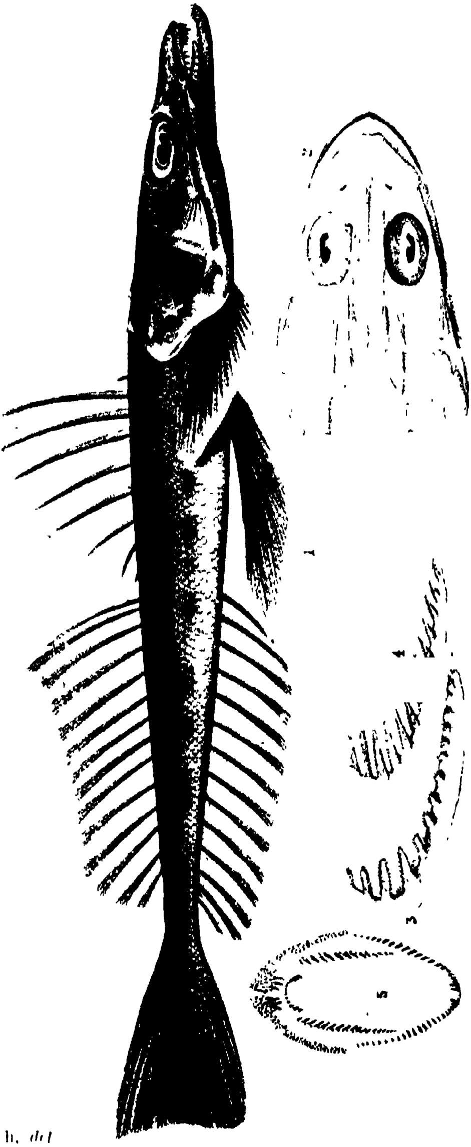
Pimelea continua sp.nova.

MB.



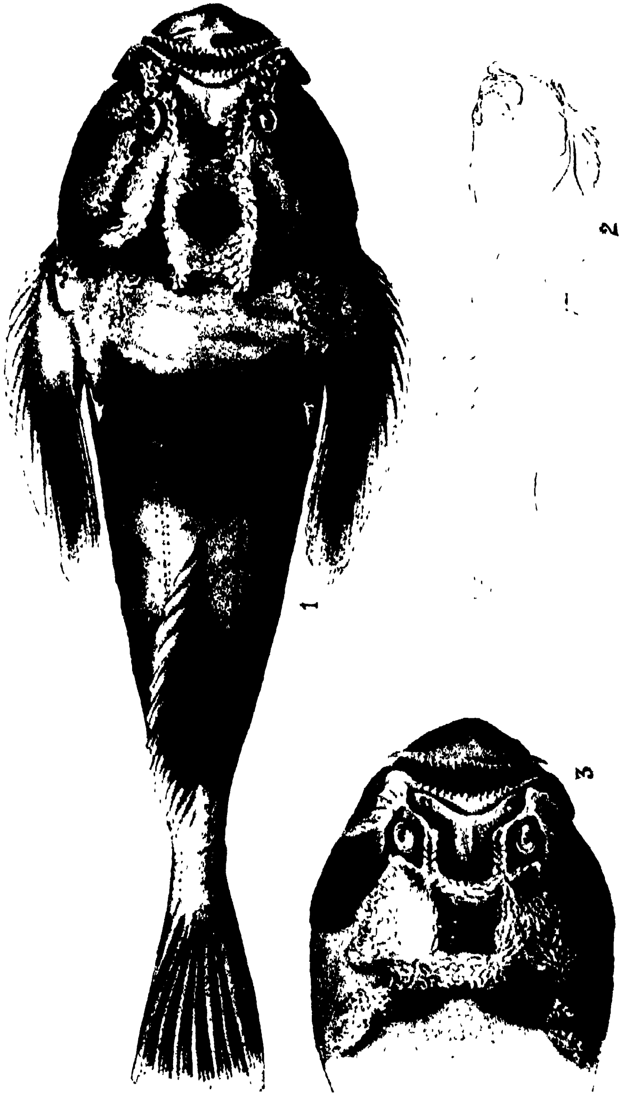
Echeneis australis, Benn.

[illegible]



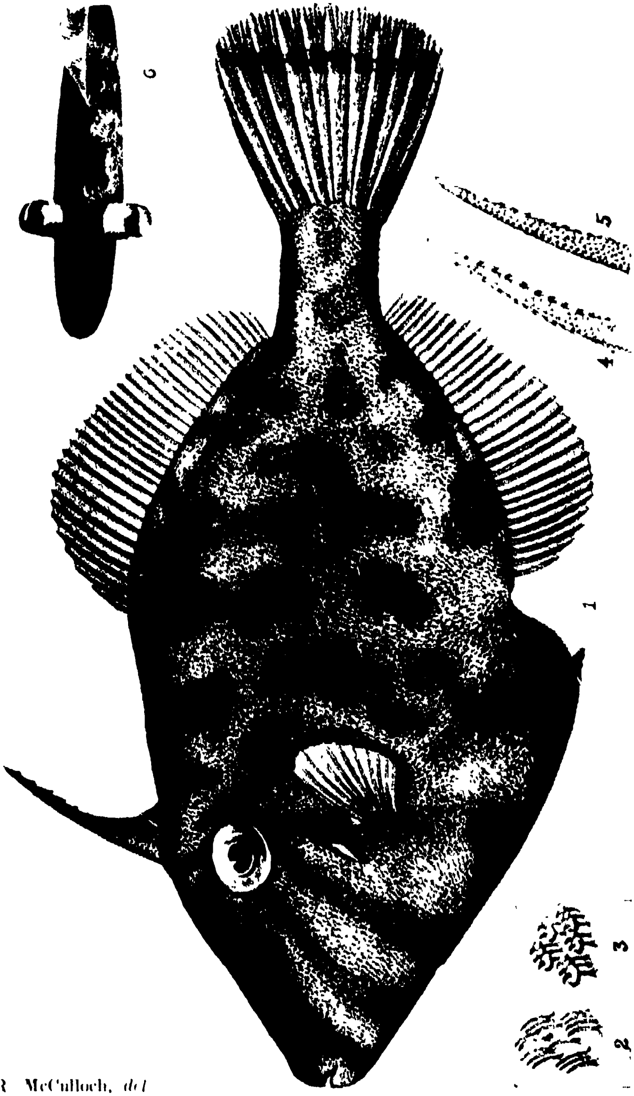
A. R. McCulloch, *del.*

Neoplatycephalus conatus, n. sp.



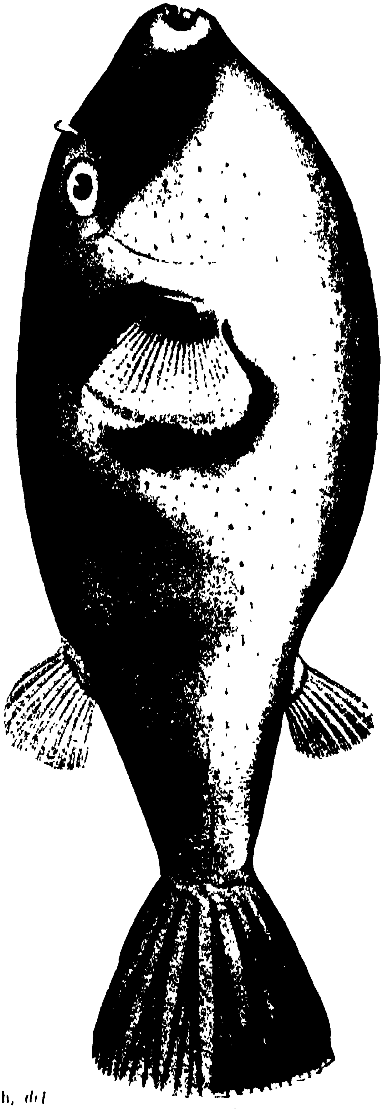
A. R. McCulloch, *del.*

1, 2. *Kathetostoma nigrofasciatum*, n. sp. 3. *K. laeve*, Bl. Schn.



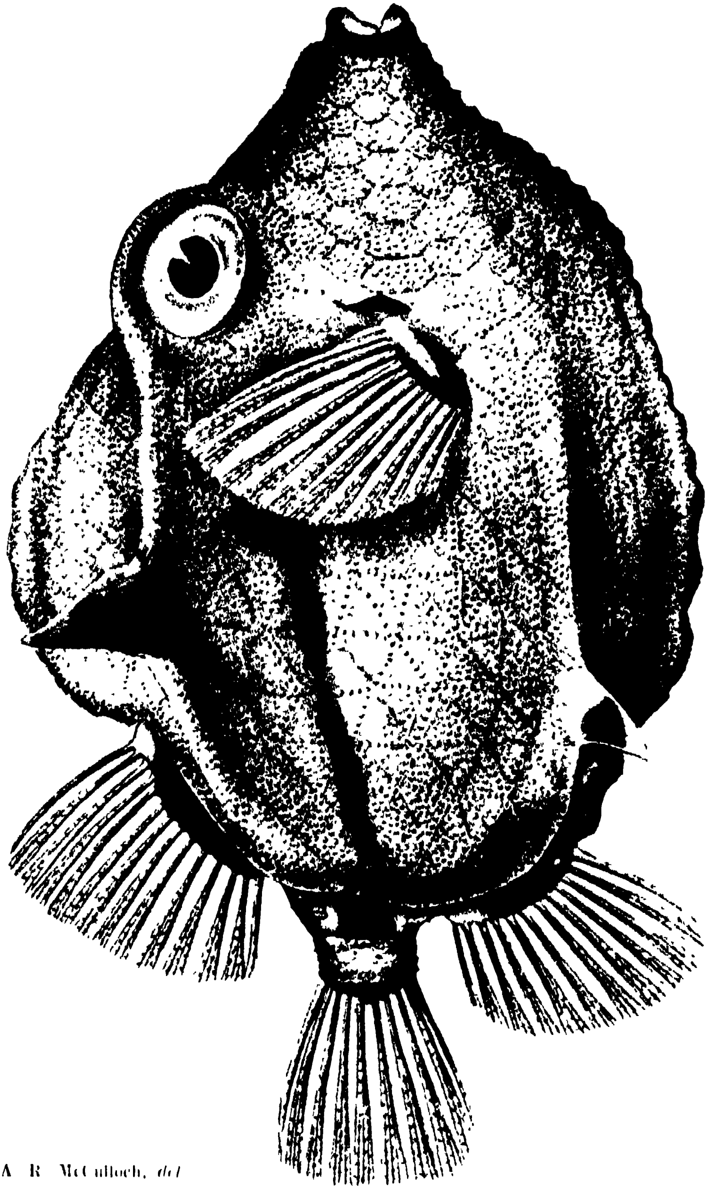
A. R. McCulloch, *del.*

Cantherines setosus, Waite.



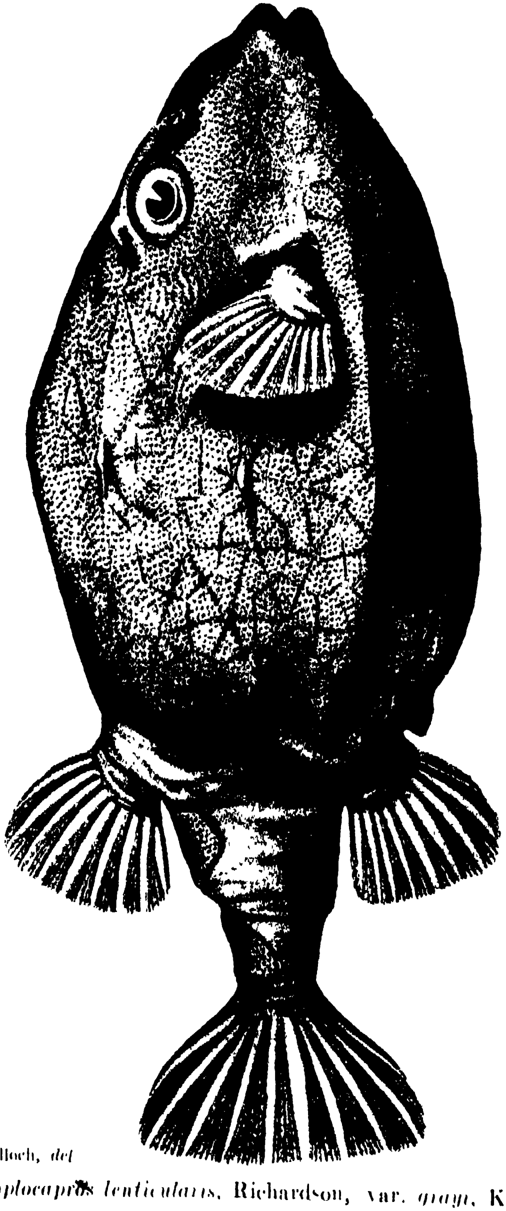
A R McCulloch, *del*

Tetraodon armilla, n. sp.



A. R. McCulloch, *del.*

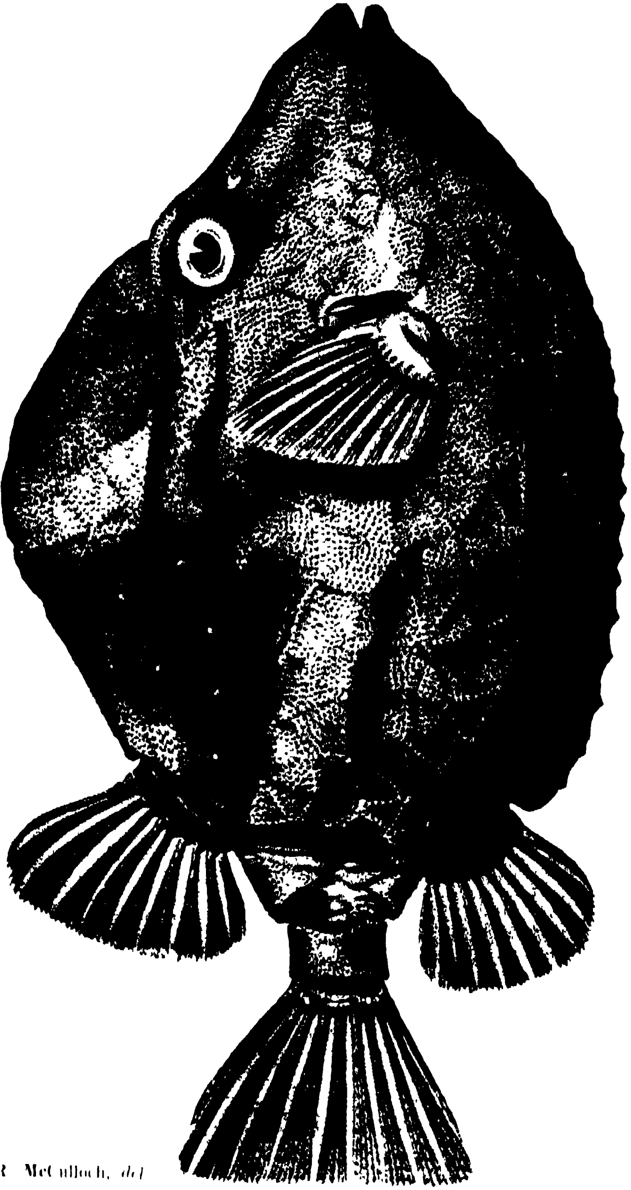
Capropygia unistriata, Kaup.



A. R. McCulloch, *del*

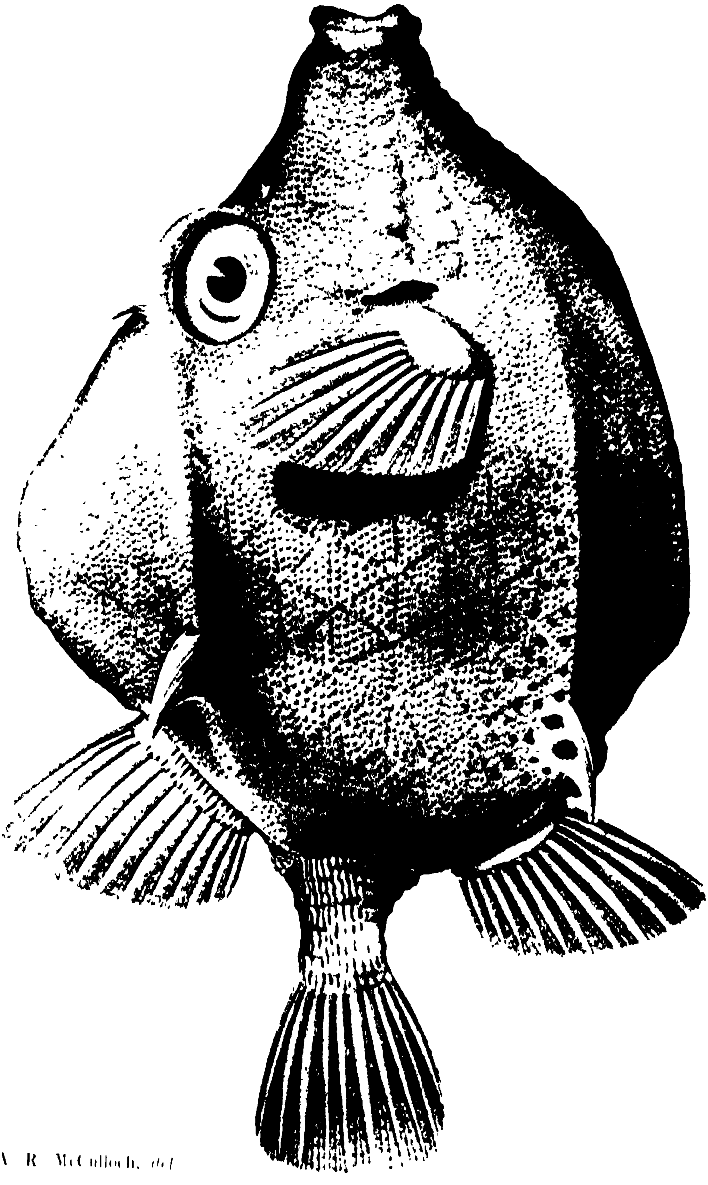
Anoplocapros lenticularis, Richardson, var. *grayi*, Kaup.

Vol. XXXIX., Plate XVIII.



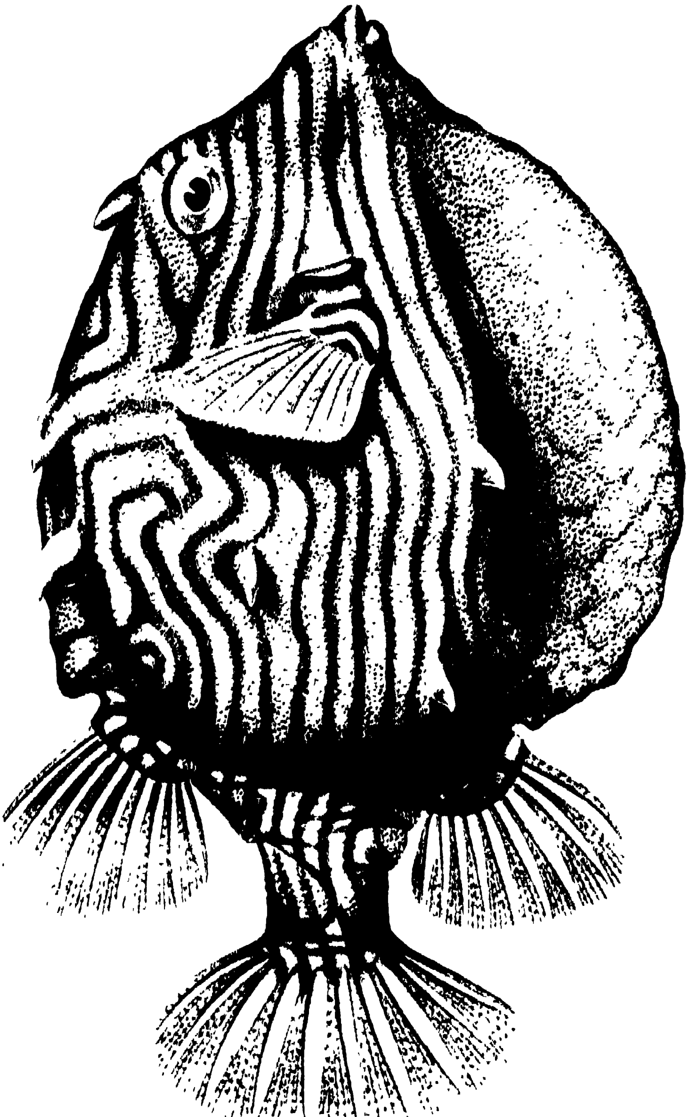
A. R. McCulloch, *del.*

Anoplocapros gibbosus, n. sp.



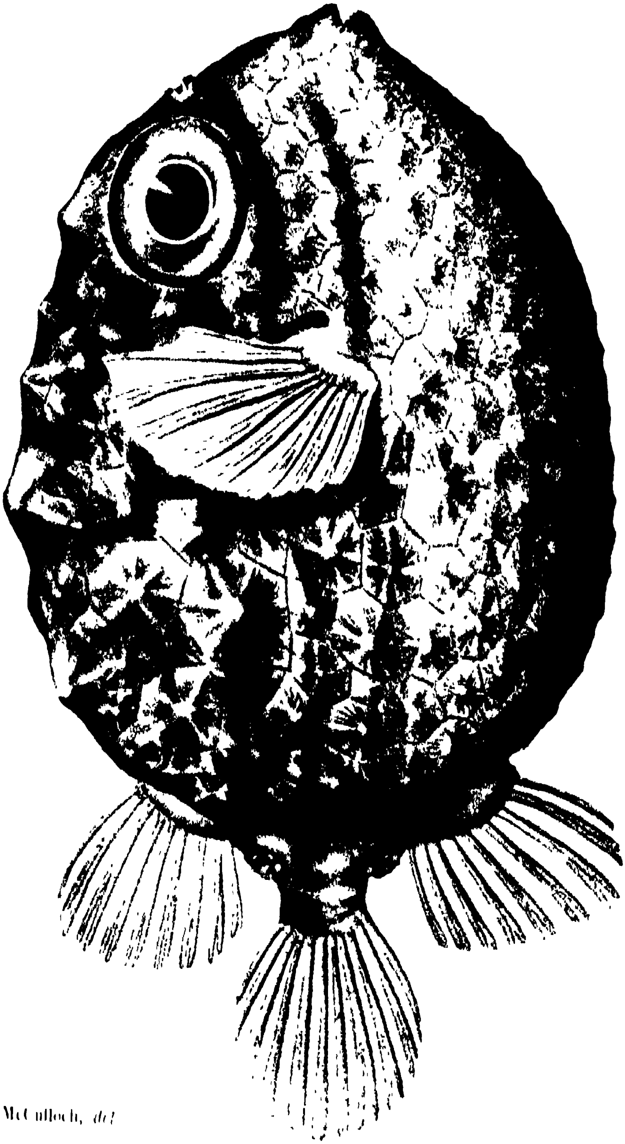
A. R. McCulloch, *del.*

Caprichthys gymnura, n. gen. and sp.



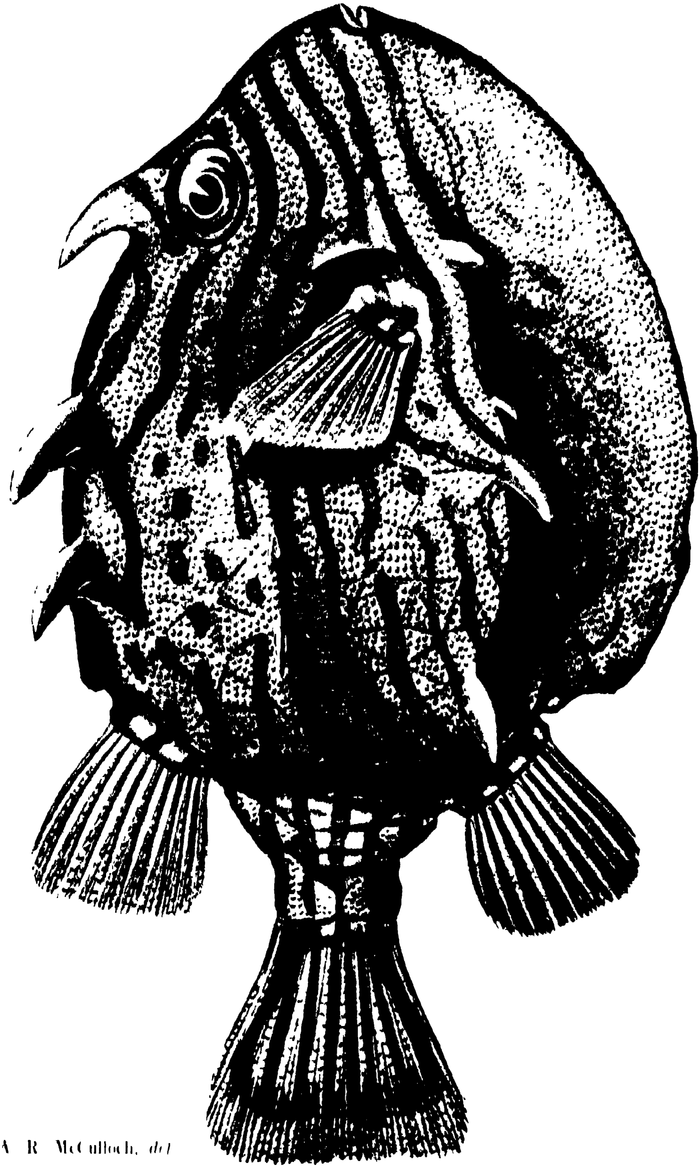
A. R. McCulloch, *del.*

Aracana aurita, Shaw.



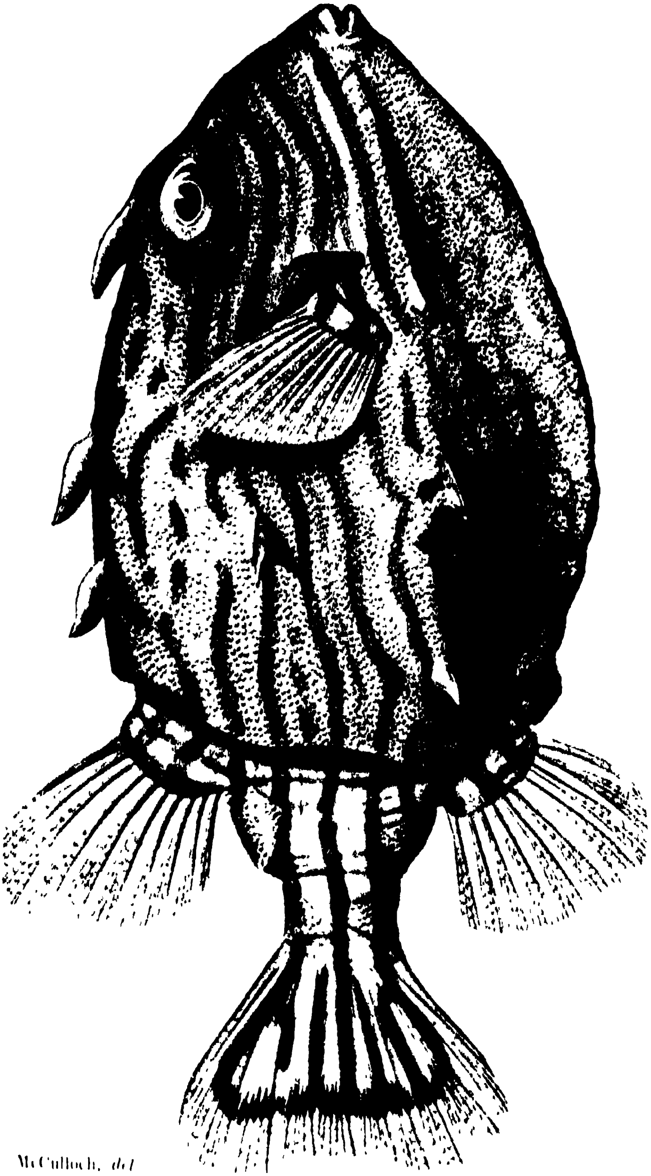
A. R. McCulloch, *del.*

Aracana aurita, juv., Shaw.



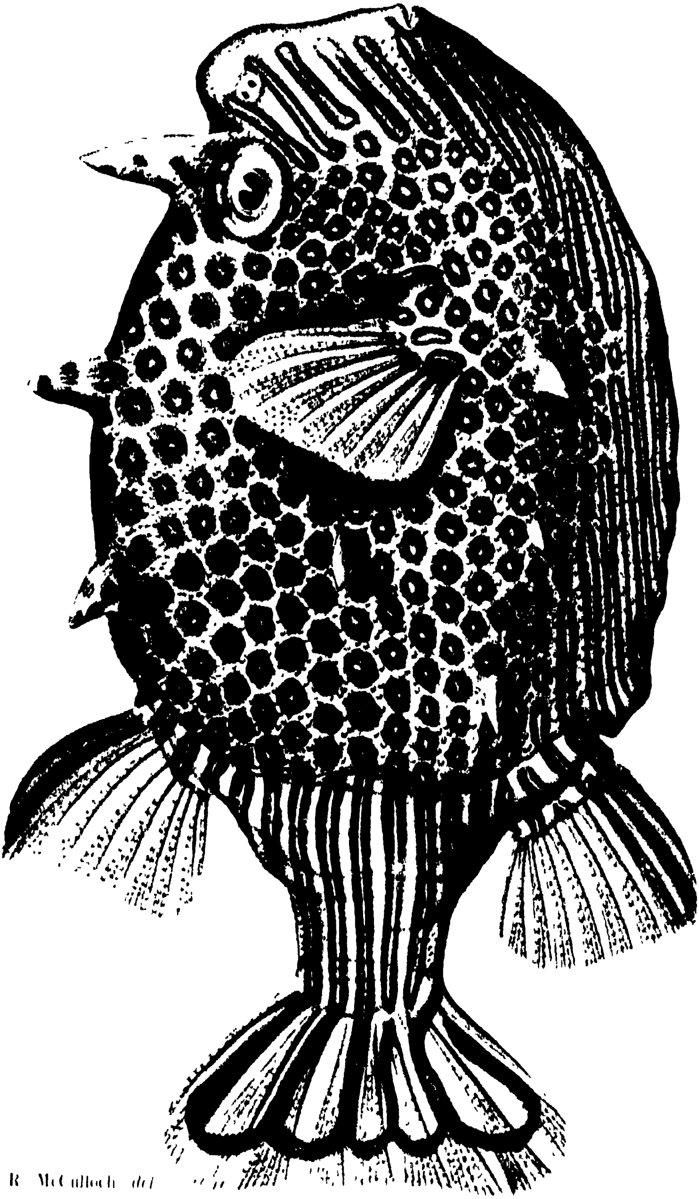
A. R. McCulloch, *del.*

Aracana spilogaster, Richardson, var. *spinosissima*, n.



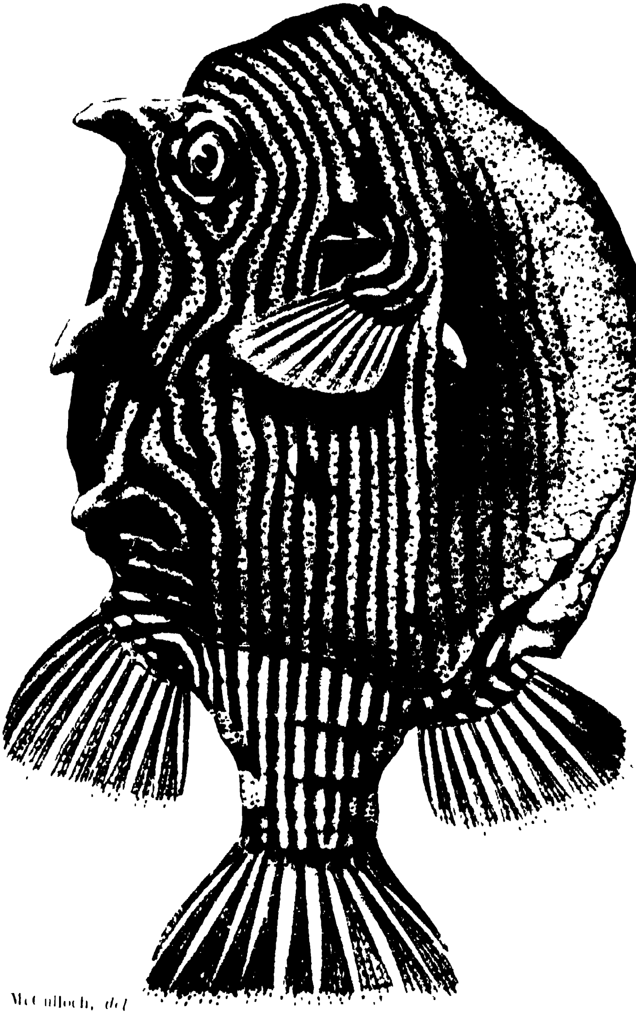
A. R. McCulloch, *del.*

Aracana spilogaster Richardson, var. *angusta*, n.



A. R. McCulloch del.

Aracana ornata, Gray



A. R. McCulloch, *del.*

Aracana flavigaster, Gray.

Fig. 1.

Fig. 2.

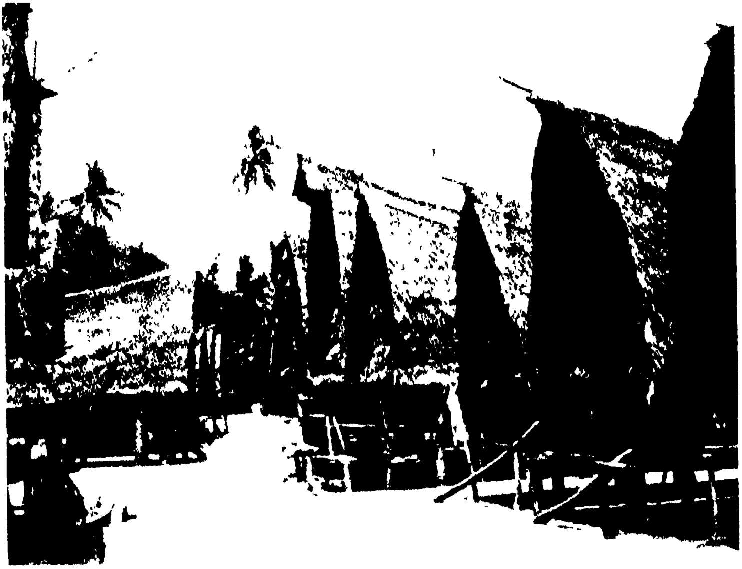


Fig. 1

Fig. 2.

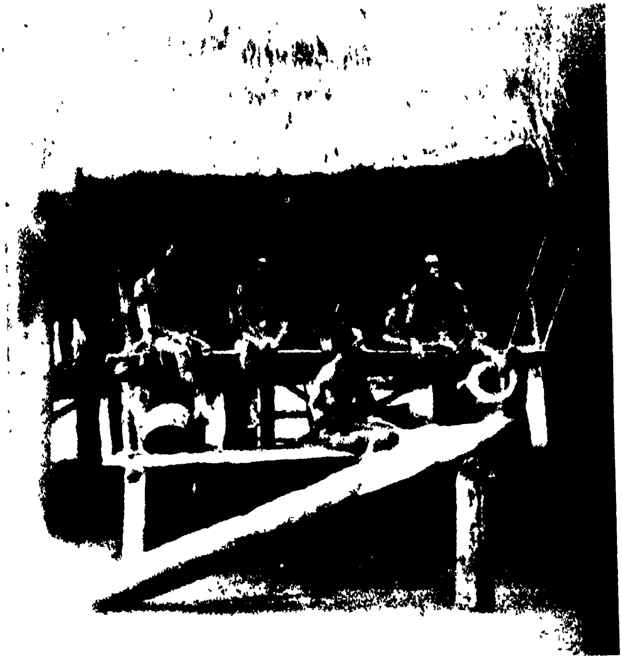


Fig. 1.

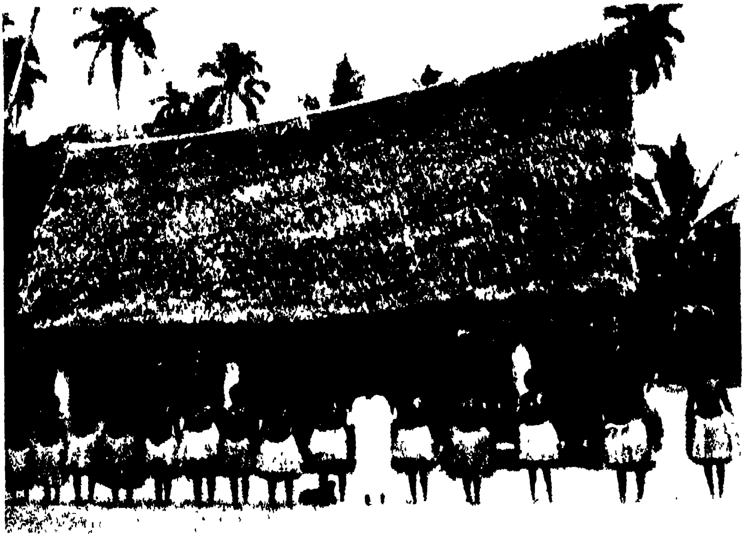


Fig. 2

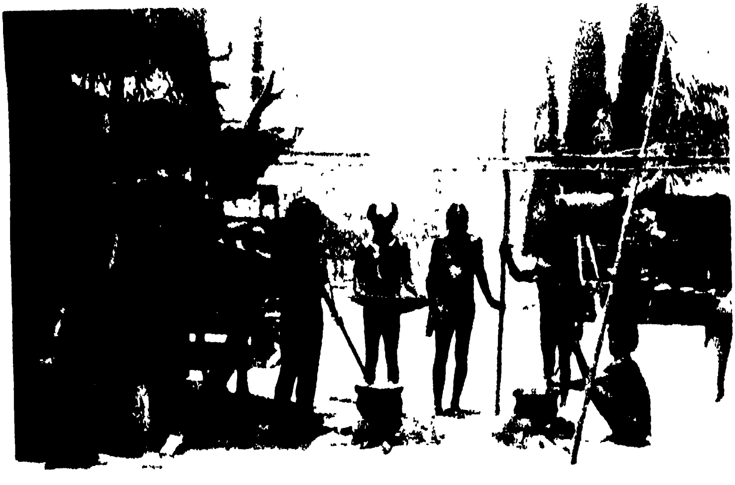


Fig 2

Fig. 1.

Fig. 2.

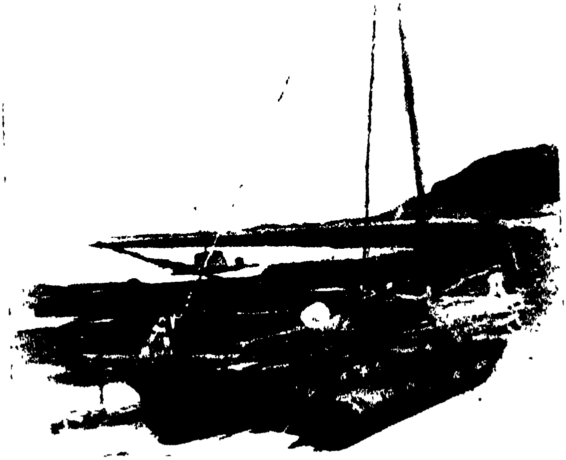


Fig. 1.

Fig. 2.

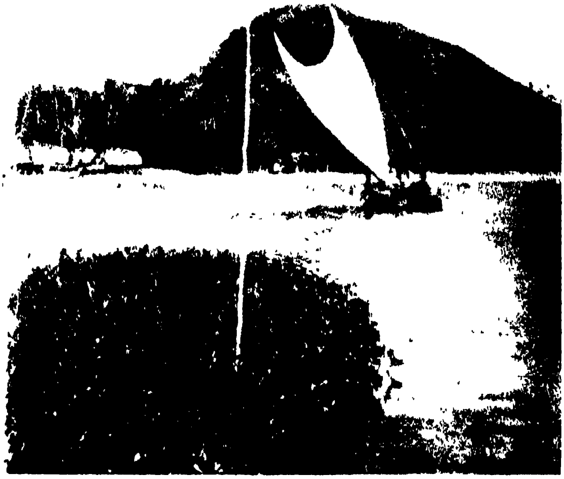


Fig. 1

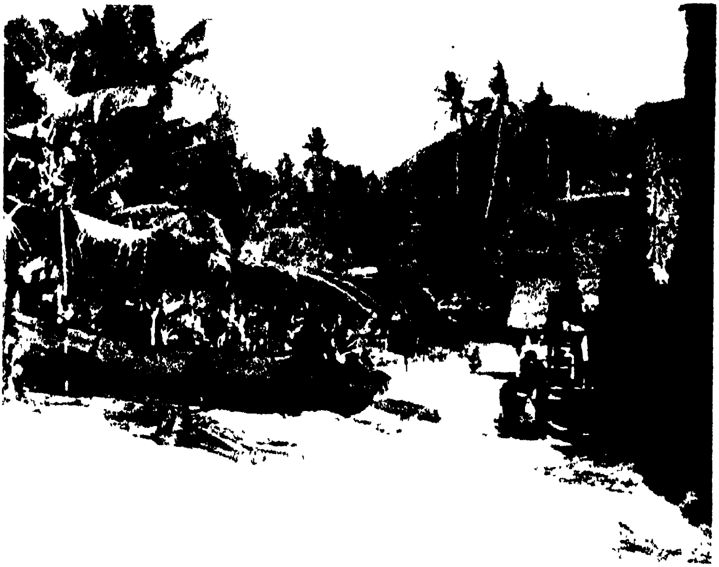
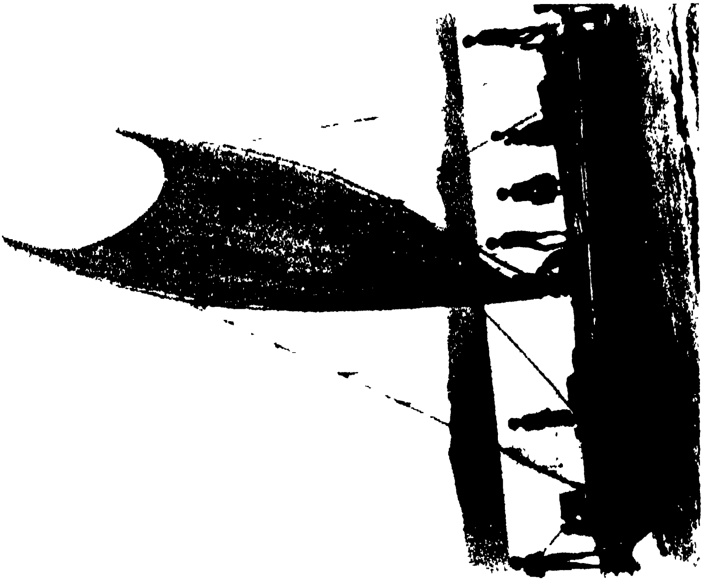


Fig. 2.

Vol XXXIX, Plate XXXVII.



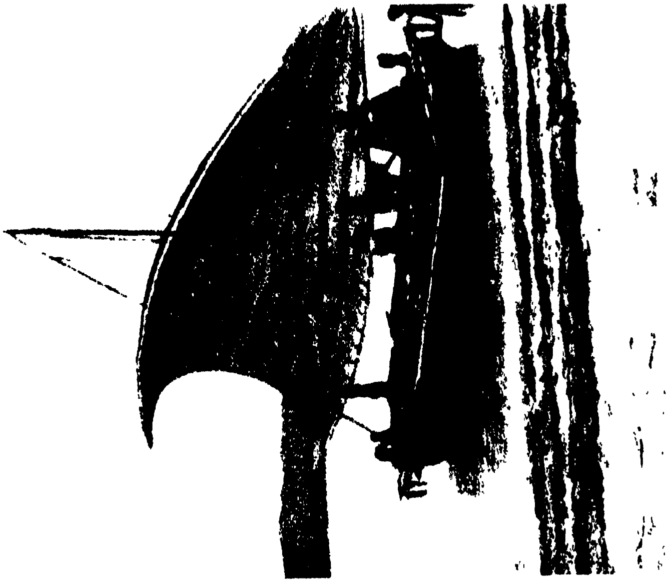


Fig. 1.

Fig. 2

Fig. 1.

Fig 2

Fig. 1.

Fig. 2.

Fig. 1.

Fig. 2.

Fig. 1.

Fig. 2.

Fig 1

Fig. 2.

Fig 1.

Fig. 2.

Fig 1.

Fig. 2.

Fig. 1.

Fig. 2.

Fig. 1.

Fig. 2.

Fig 1.

Fig. 2.

Fig. 1

Fig. 2.

Fig. 1.

Fig. 2

Fig 1.

Fig 2

Fig. 1

Fig. 2.

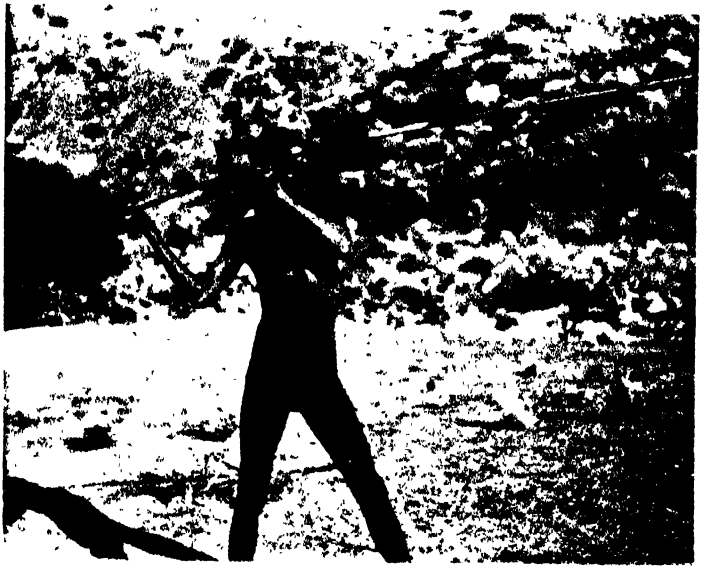


Fig 1.

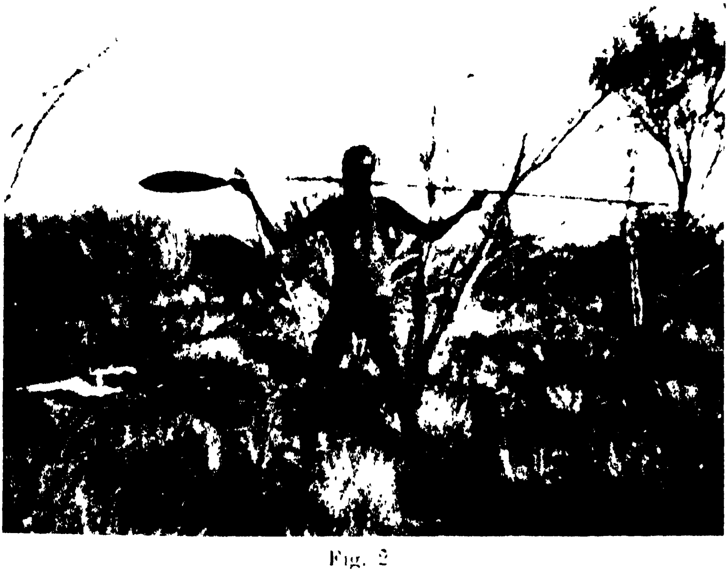


Fig. 2

Fig. 1.

Fig. 2.

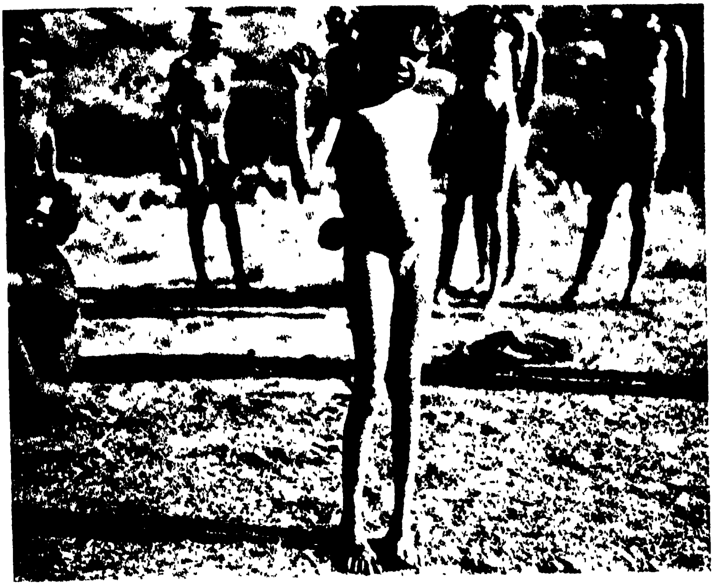


Fig. 1

Fig. 2.

Fig. 1.

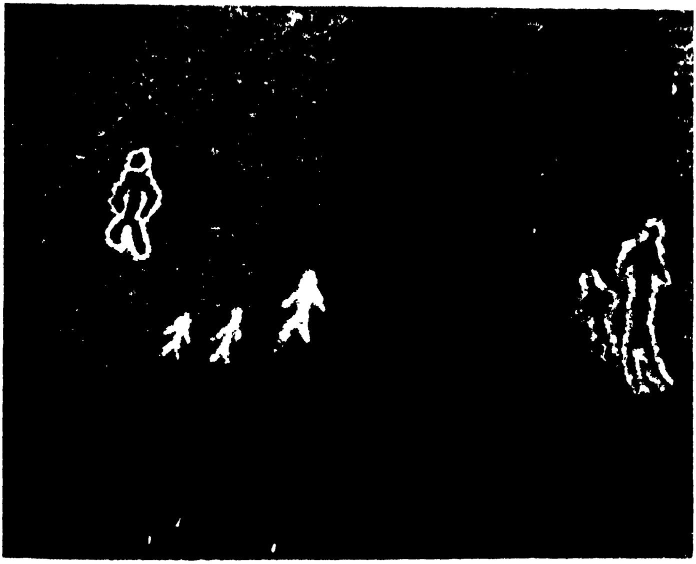


Fig. 2.

Fig. 1.

Fig. 2.

Fig. 1

Fig. 2.

Fig 1

Fig 2

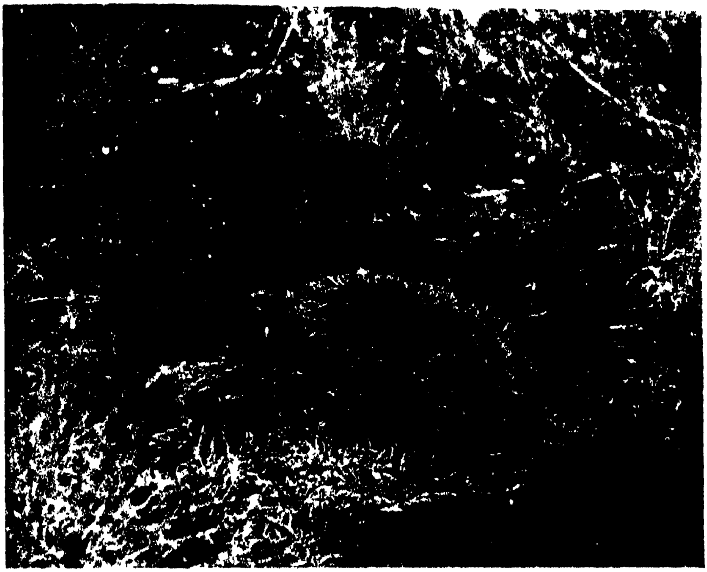
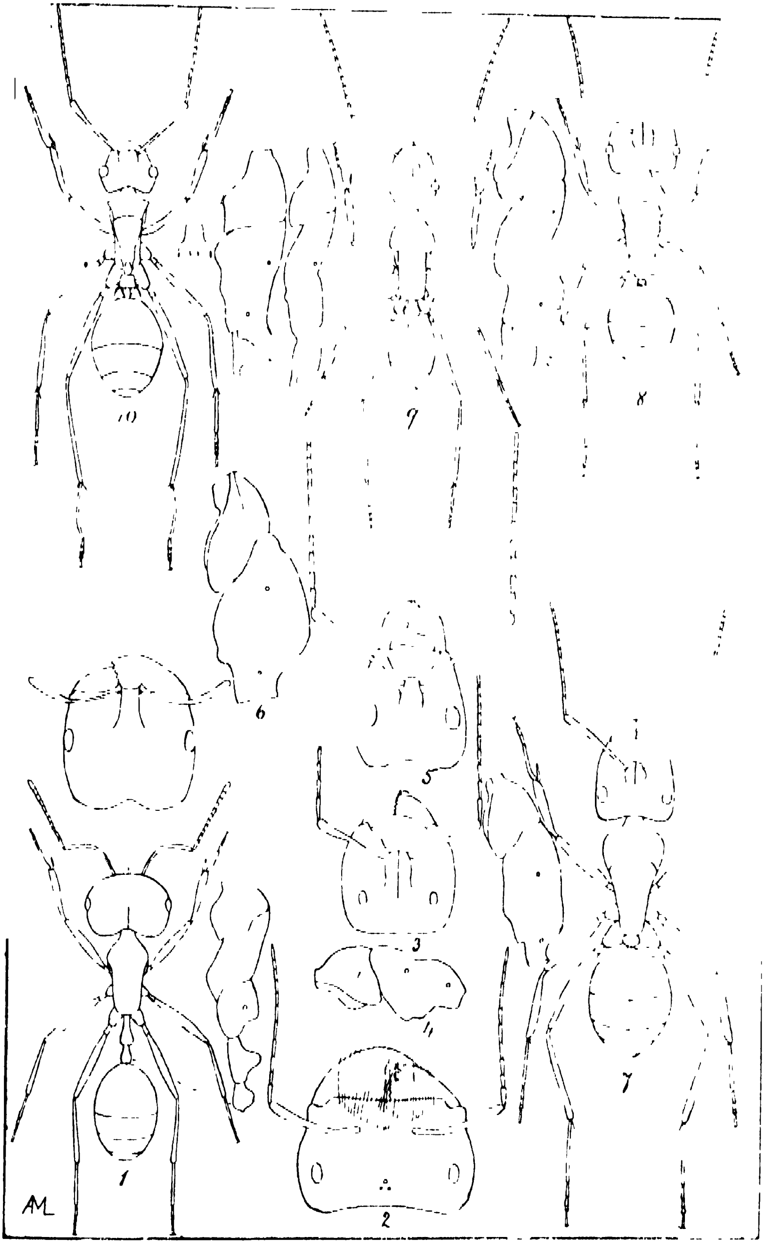
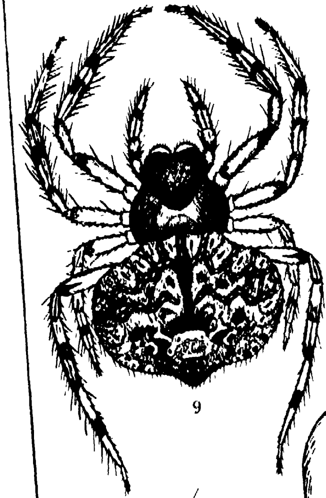


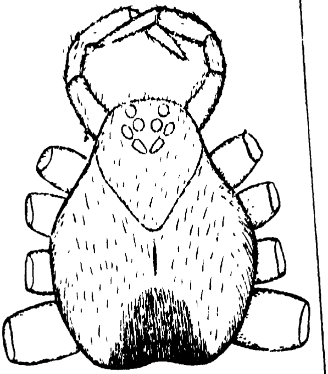
Fig 1.

Fig. 2.

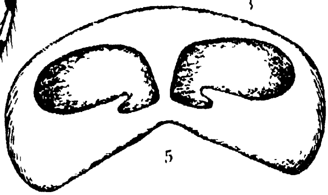

AML



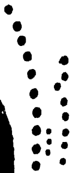
9



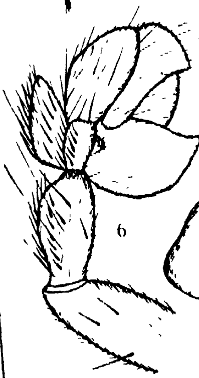
3



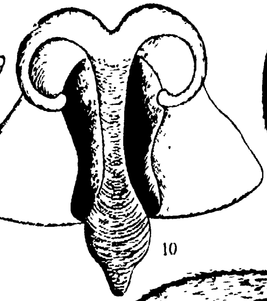
5



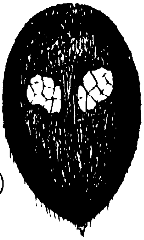
2



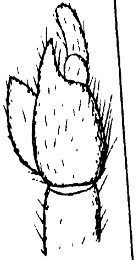
6



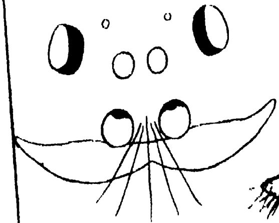
10



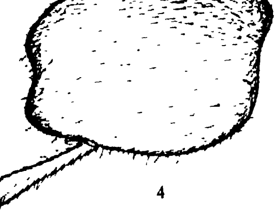
8



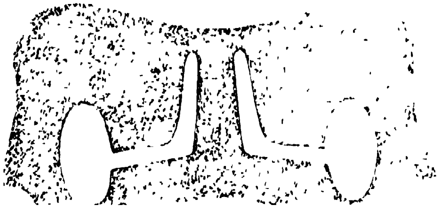
7

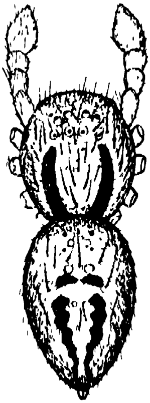


1

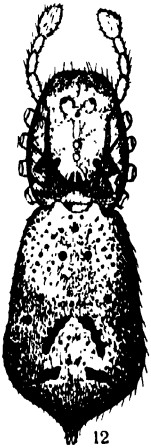


4

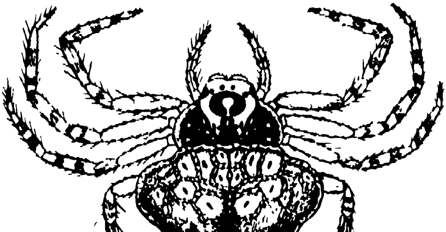




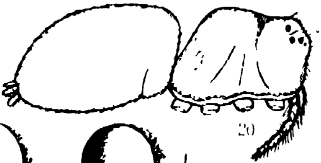
15



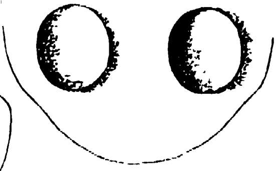
12



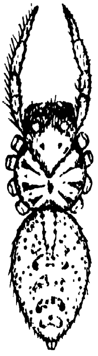
11



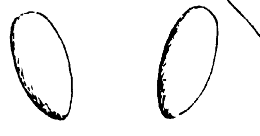
20



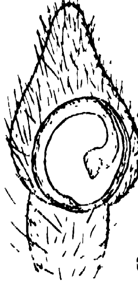
21



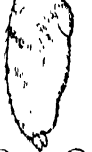
16



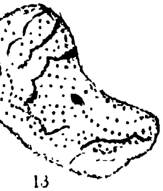
17



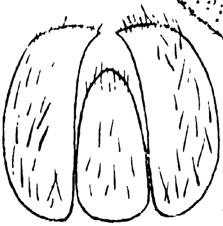
14



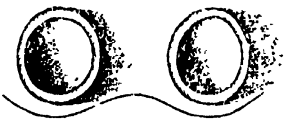
23



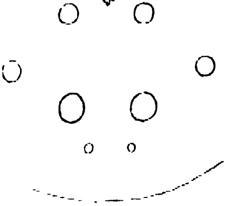
13



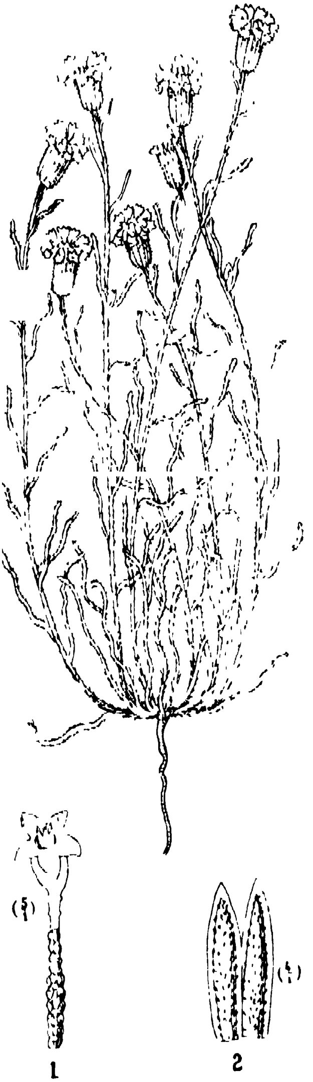
19



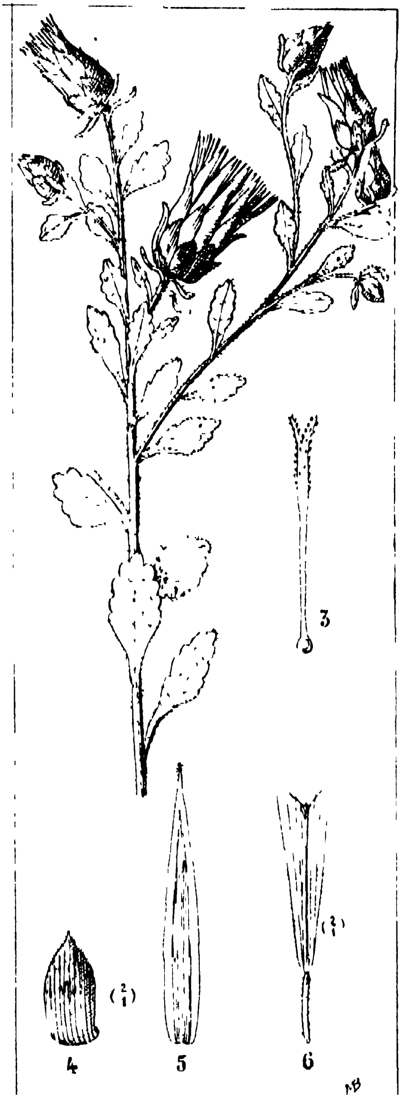
22



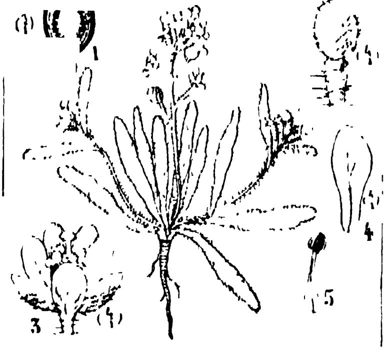
18



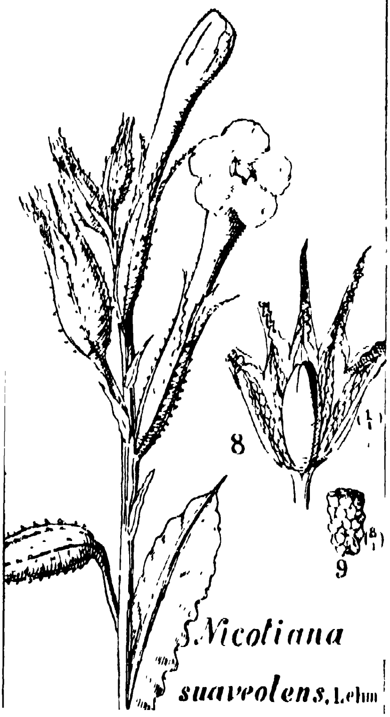
Toxanthus Whitei sp.n.



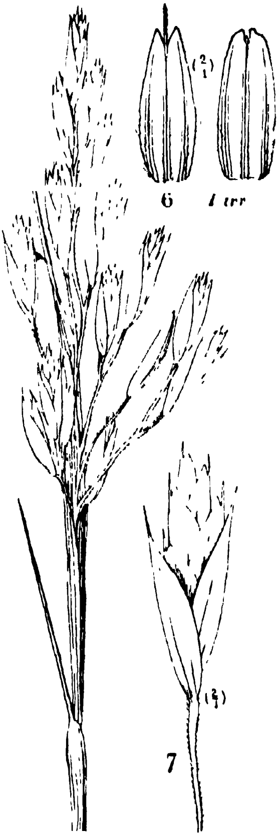
Pterigeron cylindriceps sp n.



Menkea hispidula sp. n.



Nicotiana suaveolens, Lehm.
var. n. *excelsior*.



Triodia aristata sp. n.